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Public Health in the First and Second World Wars

We are now much better prepared for the hardships and vicissitudes of modern warfare than we were when we entered the first World War twenty-five years ago. This is the conclusion drawn by the Metropolitan Life Insurance Company from mortality statistics showing that the death rate of industrial policyholders of the Company has been reduced more than fifty percent in the course of the last quarter of a century. The diseases of childhood and infancy have been virtually eliminated as causes of death within this period, which means that many of our young people living today have been spared the disabling sequelæ of these diseases. In consequence of this situation, thousands are now available for war service who, under former conditions, would have been rejected.

The death rate from tuberculosis in 1941 was about one-fifth of what it was in 1917, and the mortality from syphilis less than half of what it was in 1917. In the last war our losses from influenza and pneumonia were calamitous. It is impossible to estimate the likelihood of a serious visitation of influenza within the next few years. Pneumonia, thanks to modern chemotherapy, has lost much of its former terror; the death rate from this cause has dropped more than eighty-two percent since 1917. A factor that will not be without influence in maintaining morale is the marked improvement recently experienced in the mortality of women in childbirth. Whereas twenty-five years ago more than seventeen out of every one hundred thousand of the Company's industrial policyholders died in childbirth, today this rate has been reduced to five.

We can hardly hope to escape an increase in fatal accidents in the near future, in view of the rapidly increasing industrialization of the nation, but, thanks to advances in industrial hygiene, many lives will be saved that would have been lost under the working conditions prevailing at the time of the last war.

The death rate from motor vehicle accidents has greatly increased, however, from 10.0 per 100,000 in 1917 to 20.4 in 1941. The reason for this is obvious. In 1917 there were less than five million automobile vehicles registered in the United States; today the number exceeds thirty-three million. Possibly the reduced automobile traffic resulting from curtailment of the supply of rubber and gasoline may, at least temporarily, mitigate the death rate from this cause. On the other hand, we must perhaps expect a certain number of motor vehicle fatalities among our troops in training. The total death rate of accidents, excluding war deaths, decreased from 84.3 per 100,000 in 1917 to 50.0 in 1941.

Inasmuch as the Metropolitan Life Insurance Company's policyholders number many millions and are distributed widely in all sections of the country, they constitute a representative cross-section of the total wage-earning population. Their health experience since the last war, therefore, reflects closely that of the entire country, and the observations here recorded on the basis of their experience may be considered generally applicable to the nation as a whole.

War and Death Rate in England

In the House of Commons, Mr. Attlee, Secretary of State for the Dominions, gave the casualties in the armed forces of the British Empire in the first two years of the war. In these figures deaths from natural causes are excluded. The figures were: killed 48,973 (including 6,296 officers); wounded 46,363 (including 4,064 officers); prisoners of war 58,458 (including 3,374 officers); missing 29,756 (including 953 officers). The total casualties were 183,550 (consisting of 14,687 officers and 168,863 other ranks).

Although forty thousand deaths in a year is an addition of approximately ten percent to the normal mortality rate for England and Wales, the first two years of war have not affected the death rate to the extent that was expected, according to a report of Dr. Percy Stocks, medical statistical officer, general register office, London. High mortality in the first quarter of 1940 and 1941 is attributed to the severe winters superimposed on special war efforts.

In particular, the infant mortality rose two per one thousand live births in each of the first four quarters, and six and one-half per one thousand live births in each of the second quarters of the war. The mortality rate increased six percent the first year and ten percent the second year of the war from respiratory tuberculosis. There was another rise in the deaths from

tuberculous meningitis, of 2.4 percent of the first year and 17.6 percent the second year of the war. Cerebrospinal fever increased to four times the prewar level, but the ratio of deaths to disease was twenty percent for civilians and ten percent for noncivilians, as compared to fifty percent and sixty percent mortality in prewar days.

On the other hand, there was a distinct and entirely unexpected decline in deaths from suicide. This decline was especially noteworthy for women. A lower mortality rate was also found for rheumatic fever. Another decline of the mortality rate was seen in diseases due to streptococcic and pyogenic infections. The maternal mortality rate was substantially reduced. The incidence of stillbirths was relatively low although the birth rate declined eight percent to ten percent by the end of the second and third quarters in 1941.

We see both in England and America an increase in the death rate from tuberculosis. War conditions, such as crowded housing, poor sanitation and overwork, are chiefly responsible for this retroverse development. There is every reason not to relax our efforts for the control of tuberculosis even during the period of war.

The Stature of American Women

A recently published report, accompanied by pictures, gave the impression that the average American woman is a short and dumpy person. This impression, however, is entirely wrong, and we see the proof in a publication of the statistical department of the Metropolitan Life Insurance Company. Actually, it is almost futile to speak of the average American woman, because, in our country, with its varied race stocks, there are many types of build.

The average height of American women, measured in shoes, is five feet five inches. American girls today are as a class taller than their mothers. The averages at the ages between eighteen and twenty-five were about one inch greater than the averages between forty-five and fifty-five. These increases are the more remarkable since women of the shorter European stocks have come to form an increasing proportion of our female population.

Some years ago Bowles made an interesting study which suggested undoubtedly an increase in height. He compared the heights of college graduates of a generation ago with those of their offspring who attended the same college. His analysis of data of four women's colleges showed an increase from 161.6 cm. for mothers to 164.5 cm. for daughters, an increase of slightly less than three cm., or one and one-eighth inches. The four colleges were Vassar, Wellesley, Smith and Mount Holyoke.

Other data from college sources, based on the average heights of women at entrance, also showed increase. At Stanford University the average increase over a period of thirty years was one and two-tenths inches; at Vassar, one and one-half inches in thirty-seven years; at Smith, about one-half inch in twenty-two years. Similar in character are figures for Barnard women at graduation.

There has been a definite change in the proportion of the various race stocks composing our population. According to the Metropolitan Life, fifty years ago the population contained an overwhelming proportion of persons of western European stock. With the large immigration from southern and eastern Europe of the period before the first world war, especially from 1880 to 1914, and with the high birth rate which prevailed among these immigrants, persons of southern and eastern European origin have formed an increasingly large proportion of our population. The fact that there has been little, if any, change over a period of years in the average height, may be an indication that the new generation of southern and eastern European origin is taller than their parents. A further increase in the average height of American women may be expected.

Some Scientific Centenaries in 1942

Many centenaries of great scientific men occur in 1942, although celebrations of such are not possible in a time overcast by terrible events. However, they may be noticed as they bring hope to those now living in the shadow of death. The tercentenary of Galileo brings to the mind the birth of motion, while the bicentenary of Halley will be recalled by the many admirers of that great man.

In 1742 were born the Swedish chemist, Scheele, the German philosopher, Lichtenburg, and the unfortunate scientific discoverer, Nicolas Leblanc. He was surgeon to the Duke of Orleans and solved the problem of making soda from common salt and created a factory for that purpose. Then came the French Revolution. The Duke of Orleans was guillotined, the factory confiscated, while Leblanc was forced to reveal his process. In 1806, Leblanc died by his own hand. For many years his name was almost forgotten, but at last it was rescued from partial oblivion and now his statue stands in a conspicuous position in Paris.

In 1842, Sir Charles Bell died suddenly, the Belgian chemist, Jean Baptiste van Mons, passed away, and the British mathematician, Sir James Ivory, died. The French astronomer, Camille Flammarion, was born and the German astronomer, Carl Vogel, died. Carl von Linde, German pioneer of refrigeration, was born, also the German chemist, Albert Landenburg. Sir William Tilden, Sir James Dewar and Lord Rayleigh were born in 1842; also the Norwegian mathematician, Marius Sophia Lie and the Russian chemist, Nicolai Alexandrovich Menschietkin.

Papers and Addresses

NONPENETRATING NONFATAL TRAUMATIC HEART DISEASE*

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(*Continued from page* 438)

Case Reports

CASE I.—This case involves a twenty-six year old white man who was involved in a steering wheel automobile accident. The claim was presented that a routine physical examination prior to the accident disclosed no cardiac abnormality. Following the accident, some few hours later, a systolic murmur was elicited. It was claimed that the patient for the past year or so following the alleged cardiac injury, suffered marked dyspnea and fatigue on less than two blocks of walking at a moderate gait, and on climbing half an average flight of stairs, but yet suffered from *no* orthopnea—utilizing the same width pillow for years. It was claimed that he suffered a marked soreness over the chest wall which had no radiation and no relationship to even heavy meals, but was exaggerated upon exercise. Some sharp stabs of pain occurred in the region of the heart. Tonsillectomy was performed at one year of age and the patient suffered from occasional colds and tonsillitis (?) thereafter. It was stated that he had been an active participant in high school athletics. Directly following the accident he remained at home for three days and then enjoyed a sojourn at Lakewood for the next seven days. Following his return it was claimed that he was extremely nervous and had lost his appetite, and was cautioned against his usual daily labors.

Our physical and laboratory examination revealed a highly tensioned individual possessing a large left auricle, a large pulmonary conus, a positive "nipple" sign (15), no axis deviation upon the electrocardiograph, no orthopnea in the recumbent position, a mitral diastolic rumble elicited on exercise and in the left recumbent position, an accentuated P2, and an accentuated first sound at the apex.

It was argued that organic heart disease sufficient to produce such symptomatic distress would certainly manifest itself in orthopnea;. further, the history of repeated tonsillar infections, plus the history of tonsillectomy at one year of age, plus our physical and laboratory examinations, all combined to present a diagnosis of inactive rheumatic heart disease. The plaintiff's attorney desired a $50,000 judgment against the chauffeur of the truck supposedly at fault for the accident. The jury, within a reasonable length of time, concurred with our belief that a diagnosis of inactive rheumatic heart disease was more reasonable than traumatic heart disease, and no judgment was awarded. The judge himself evidenced a keen interest in the quiescent stage of rheumatism, in which the probable activity of rheumatic infection may be likened to a pile of leaves that have been raked together in the autumn and ignited. Occasionally it will burst into flame and be entirely consumed, or it will burn slowly for awhile and then die out. Usually, however, it will smoulder underneath and as each new gust of wind happens along, will flare up or smoulder more quickly, apparently lying dormant, but underneath the top layer of untouched leaves the flame smoulders, eating away at the core of the pile, insidiously spreading and feeding, hopefully waiting for another breeze to fan it into being. The quick consumption by fire is akin to the acute stage of the rheumatic infection, the gusts of wind to the reinfection of the disease as by grippe, pneumonia or other upper respiratory infections, and the smouldering to the dormant or chronic stage. In this case we were confronted with a probable single episode or bout of rheumatic fever which produced a moderate amount of heart damage and which sustained no subsequent rheumatic seizures of an acute nature.

CASE II.—In this case the patient was a middle-aged white man, with a recognized preexisting essential hypertension and hypertensive heart disease. Aggravating this picture was a moderate generalized arteriosclerosis. The office elevator in which the claimant was a passenger, fell several feet and stopped with a sudden jerk. The plaintiff immediately experienced a sudden sharp pain in the precordial region and was hospitalized. Râles were heard at the right base, and the arterial tension was elicited at 135 mm. of Hg., systolic and 85 mm. of Hg., diastolic. Moderate sclerosis of the vessels were present. An electrocardiograph taken on the day of admission demonstrated all normal complexes, yet on the following day, with the utilization of the same technique by the same technician, the T4 was visualized as a deeply inverted covered complex. On subsequent graphs, the inverted T4 gradually assumed its normal configuration. No other findings were elicited as diagnostic of a closure of one of the smaller branches of an artery.

This, then, was a case in which preexisting heart disease was aggravated by means of sheer fright and distinct excitement. Meager, yet positive, evidence was elicited, which determined for us that some myocardial change had occurred and there appeared to be a fairly reasonable relationship between the elevator incident and the subsequent course of events. At our suggestion, the insurance carrier effected a settlement with the claimant and no legal steps were entertained.

CASE III.—This is a case in which a middle-aged laborer suffered a fall while at work and claimed an injury to the chest and heart. The previous history supposedly was essentially negative. Immediately following the alleged injury and prior to admission into the hospital, a physician elicited the systolic arterial

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tension at 150 mm. of Hg. and the diastolic at 110 mm. of Hg. The physical examination early in the evening of the day of admission into the hospital revealed no marks of contusions or injuries to the chest wall. The heart sounds were of fair quality, with soft systolic blow ever present at the base and at the apex. The rate was within normal limits, but the rhythm was decidedly irregular. The arterial tension as expressed in mm. of Hg. was elicited at 168 systolic and 98 diastolic. The arteries were definitely sclerosed, the urine was negative, and congestive failure, as evidenced by the presence of râles at both bases, an enlarged liver, sacral edema, and edema of the lower extremities of a marked degree, was present. An electrocardiographic examination revealed frequent premature ventricular contractions with occasional pulsus bigeminus. A diagnostic embracing all findings thus presented itself:

1. Hypertensive and arteriosclerotic heart disease.
2. Enlarged heart, mitral incompetency; myocardial fibrosis.
3. Regular sinus rhythm with frequent premature contractions.
4. Functional class 4.
5. Therapeutic class 5.

Our thought in this situation was that the illness of the patient was one of long standing, of an insidious onset and of a progressive nature—until such time as myocardial insufficiency or failure resulted—as evidenced by physical findings. Unless within the realm of medical fantasy, we could not conceive of an injury—nonpenetrating in type and noncrushing—which could have been the etiological factor causing such extensive heart failure in such a short number of hours and unattended by any associated specific physical and laboratory findings. To augment this conviction, under proper mercurial diuretic and quinidine therapy, within one week, the evidences of failure all disappeared; yet the arterial tension remained elevated and the left ventricle remained enlarged. The normal heart sustaining trauma which would cause its acute dilatation would present a rather different picture, and under proper and adequate therapy would revert to its normal state within the period of treatment mentioned above. The normal heart sustaining such injury and such dilatation would certainly not gain a markedly increased arterial tension—as a factual occurrence, the reverse would be a truism; and upon reversion to its original state, the arterial tension would hover between normal limits. In this case, isolated enlargement of the left ventricle remained, the arterial tension persisted in its elevation, the liver remained palpable, and the systolic blow both at the apex and base persisted.

In this instance, litigation was entirely avoided by a sincere and honest discussion and the patient was given compensation because of the fall and subsequent bruising and for the short period of time away from his labors.

CASE IV.—In this case the claimant, a middle-aged white man, professed no knowledge of any preexisting cardiac ailment or any of its attendant symptoms. He sustained an injury to the left chest, which presented no evidence of external violence, and directly thereafter, stated that he suffered gasping sensations and precordial pain and distress. The essential findings by a physician, who examined him directly after the alleged injury, were a marked pulse deficit with apical rate of 120 per minute and a radial rate of 80 per minute, a heart which the teleoroentgenogram showed was much enlarged, and a tender area over the left lower four ribs. Our examination essentially elicited only an irregular rhythm, a moderate pulse deficit, more than moderate sclerosis of the vessels, a slight but definitely appreciable enlargement of the left ventricle, an accentuated aortic knob, a visible descending aorta in the right oblique position, auricular fibrillation, as evidenced by clinical and electrocardiographic examinations, moderate elevation of the systolic arterial tension, a vital capacity efficiency quotient of ninety-seven and one-half percent, and no evidence of even latent heart failure.

It was argued that the history suggested an alleged injury to the left chest wall which was not sufficiently severe to cause evidence of violence yet resulted in some alleged cardiac symptoms. Transitory pain over the precordium need not be pathognomonic of a cardiac pathological condition. An ache following the pain upon the chest wall certainly could not be ascribed to a cardiac injury; but rather more probably to an injury to the chest wall itself. A gasping sensation is a common subjective symptom following even mild shock as a result of any type of accident.

It was further argued that the physical examination disclosed only the presence of an irregular rhythm commonly associated with arteriosclerosis of the cardiovascular tree, as evidenced by the sclerosis of the radial vessels in this case. There was no presentable evidence of any failure of the myocardium. The original physical examination performed by the attending physician presented no subjective or objective phenomena usually associated with an acute change of rhythm whose etiology might conceivably be either trauma or normal physiological changes. An incipient and insidious development of a change in rhythm is usually devoid of subjective stress in the early stage.

Further, the arterial tension and associated readings were all indicative of the somewhat splendid cardiac reserve of this patient, although any tension above 140 systolic or 90 systolic are to be regarded in the category of hypertension. It was obvious that we were concerned with a case of mild hypertension (somewhat large left ventricle and moderate hypertension) and moderate arteriosclerosis. The fact that the tension at a subsequent examination at the hospital by a second physician was elicited at 128 systolic is a phenomenon to be expected, for in all cases of mild hypertension the patients do exceptionally well with bed rest and sedation and there is always an appreciable fall in arterial tension.

It was further argued that essential hypertension and hypertensive heart disease has an insidious onset and is always aggravated by the similar insidious onset of arteriosclerosis. Many patients suffer from angina pectoris or heart failure for years, yet cardiac symptoms may be entirely lacking or lurking in the background. Numerous persons with very high blood pressure are able to perform hard physical labor for years without undue shortness of breath, and since there must be a beginning to all things, it follows that persons afflicted with mild hypertension and arteriosclerosis may the more readily suffer no untoward

symptoms for a long period of time irrespective of electrocardiographic changes and other findings. It was stated with emphasis that a single trauma or severe strain was not responsible for the development of arteriosclerosis or hypertension; nor was there any evidence that the trauma alleged here was an aggravating factor. The onset of these pathological processes, due to their very nature, antedated for a long period of time the alleged injury and therefore the element in causal relationship had to be eliminated; in order to conclude that the alleged trauma accelerated the diseased arterial system, the rate of progress of the disease should have been rather rapid, yet the intervening time between the alleged injury and the examination was peculiarly marked by a death of not only essential but vaguely associated symptoms. Were the patient's attention not focussed upon his cardiac condition at that time, he probably would have remained symptomless until such time as the natural decaying processes of this disease would have produced heart failure. The arrhythmia was essentially a coincidental finding and bore no relationship to the alleged trauma. There was no financial recovery given this claimant.

CASE V.—This is a case in which a sixty-five year old white man, while working on a brewery truck was injured by a barrel rolling on him and causing an injury to his chest. The plaintiff claimed precordial distress and pain, shortness of breath and a soreness over the chest wall as a consequence of the alleged injury. The plaintiff possessed an emphysematous chest causing a diminution of the intensity of the heart sounds which otherwise appeared to be normal. The rate and rhythm were within normal limits and no valvular pathology was audible. The point of maximal intensity of the apex beat was elicited in the sixth intercostal space outside the nipple line. There was no recognizable evidence of any heart failure, though some râles were present at the lung base which disappeared upon deep inspiration. Sclerosis of the radial vessels was present in more than a moderate degree and the arterial tension as expressed in mm. of Hg. was elicited at 130 systolic and 80 diastolic. The fluoroscopic examination disclosed a left ventricle which appeared to be enlarged, and a tortuous, elongated and kinked aorta. The aortic knob was definitely prominent and the ascending portion of the aorta appeared widened. The electrocardiographic examination was essentially normal. The diagnosis was a generalized arteriosclerosis and arteriosclerosis of the aorta.

Of the various accepted theories regarding the development of atheroma, the majority opinion appears to be that atheromatous changes are a result of imbibition of blood plasma by an intima in which there has been a molecular loosening due to wear and tear of the structure per se. Another accepted thought is that atheromatous changes are due to primary degenerative lesions due to nutritional disturbances and continue along a regressive disintegration, resulting in a kinking and tortuosity of the aorta. There apparently is no reference in the literature to an external injury being the causative factor of a degenerative lesion of the great vessels. Ultimate findings never have portrayed an injury such as described in this case and in similar cases as the cause of such extensive degenerative atherosclerotic changes as visualized in the entire ascending, transverse and descending aorta.

There are no definite symptoms of aortic disease except those which result from its complications, such as aneurysmal dilatations, occlusion of the mouths of the coronaries and to other rare causes. There is no proof that simple aortic involvement by arteriosclerosis can cause pain, yet the accompanying pain may result as an evidence of coronary artery insufficiency.

Thus, it was finally argued that this case presented the picture of a structure undergoing the pathological process of continued degeneration, its inception occurring many years ago, its onset insidious, its progress advancing, its conclusion a varied group of signs and symptoms of the failing heart of middle age. There was no possibility of any causal relationship between the alleged injury and the cardiac condition, and in this concept the referee agreed.

CASE VI.—An adult white woman, thirty-eight years of age, was a passenger in an automobile which was involved in an accident. She suffered a fractured nasal bone and lacerations about the face, as a result of which she went into the state of shock. Within a short time, and while in this state of shock, an electrocardiographic examination revealed merely low voltage of the QRS complexes. This graph was taken by her personal physician. Subsequent electrocardiograms revealed a return to an apparent normal voltage of the QRS complexes and these were somewhat slurred. As a matter of fact some eight to ten graphs taken periodically demonstrated no significant changes of any of the varied complexes with the exception of those changes in Lead 111 associated with changes in position and respiration. The ST waves were considered elevated, measuring but one mm. above the isoelectric level taken at the diastolic phase—the R-P level—rather than considered at no elevation if taken from the accepted PR interval level. Physical examination of the heart at no time disclosed any of the transitory arrhythmias, any impaired heart sounds, nor any valvular disease. Fluoroscopic examination was essentially negative and other laboratory findings commonly associated with acute coronary artery disease were not present. A diagnosis of traumatic heart disease was concluded by the claimant's physician because of the mildly slurred QRS complexes, the initial low voltage of the QRS taken with the patient in a condition of shock, the return of the low voltage to an apparent normal after after the condition of shock had been alleviated, and the ST elevation one mm. above the isoelectric level—the level of which was taken at the R-P interval (diastolic phase of the heart) rather than the isoelectric level at the accepted PR interval.

It evidently was apparent to both judge and jury that the claims of traumatic heart disease as a result of the accident were erroneous and though the plaintiff received some $3,500 for the facial condition, nothing was allowed for her alleged cardiac illness. It is interesting to note that a settlement of $8,000 was offered by the insurance carrier, but $8,500 had been demanded. The question of the $500 and expert testimony resulted in the award of $3,500.

This case reiterates the time-worn problem of correct electrocardiographic interpretation, of proper evaluation of the varied complexes in relation to the accepted normals, and of impersonal and impartial judgment.

(To be continued)

THE DIAGNOSIS OF CARCINOMA OF THE RECTUM FROM THE VIEWPOINT OF THE GENERAL PRACTITIONER*

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This is intended to be a more or less practical discussion of especial interest to the family physician, in the hope that it may contribute something of value to a problem which is of deep concern to every medical man.

The very mention of carcinoma suggests to many patients great fear and dread because it is the general impression that such a diagnosis, once made, offers no hope of recovery and indeed only long continued physical suffering and mental distress.

The purpose of this paper is to present a more optimistic view of this disease based on what has been learned about its course and management by the accumulated experience of many men working in this field. Following this line of thought, it may be stated that the prognosis of carcinoma of the rectum is far from hopeless when it is diagnosed early and treated properly, while it is still a local disease. It may, in many cases, be successfully removed and patients restored to useful activity for many years.

But this cannot be accepted without qualification because it depends upon several factors, such as the type of the disease, the time of its discovery and choice of treatment.

For example melanoma and colloid carcinoma generally run a malignant course with early fatal results, but adenocarcinoma, which represents eighty-five percent of rectal cancer, is slow to grow and late to spread. According to Miles, it takes about one year for a growth to encircle the rectum completely, while it is eighteen months before it breaks through the protective barriers of the rectal fascia. As the chances of recovery depend in a large measure, all things being equal, on the time when it is discovered and properly treated, this dictum may be accepted as one of the favorable aspects in the control of the disease.

To illustrate the final results observed in some cases of cancer, I wish to cite the following:

1. A surgeon of middle age was operated upon ten years ago and remained in active practice until his retirement.

2. A school teacher, single, twenty-six years of age, was operated upon fourteen years ago for a malignant tumor of the rectum. She went back to work in three months, married subsequently, and is now in good health despite a less favorable prognosis in younger patients.

3. The mother of a physician, a woman past seventy, has been to see the writer for a recurrence of a carcinoma eighteen years after operation. She enjoyed comparative comfort and health during that time.

4. A man of sixty-eight, operated upon eight years ago, is now in good health except for chronic osteoarthritis, and is able to continue his usual work as a furnace man.

5. A middle-aged spinster was operated upon seven years ago for the removal of the rectum for carcinoma. She is living today, with no return of the disease.

*Read before the Clinical Society of the Harbor Hospital, April 8, 1942.

Such cases are not infrequent and as a matter of fact the various organizations interested in carcinoma research report an increasing number of five and ten year cures from various types of cancer.

In addition to the results following surgery, we have in carcinoma of the rectum still another weapon in the removal of precancerous conditions. When tissues are injured, altered, changed by trauma, inflammation, chronic irritation, mechanical, chemical or bacterial, they furnish favorable soil and thus may become the forerunners of malignant degeneration. Examples of this are the sun and wind cancer of farmers and sailors, tar cancers occurring in certain industries, chimney sweep and betel gum cancer, all of which have been known to arise from long continued insult to tissue in individuals whose resistance has been weakened and who are particularly predisposed to malignancy.

In the gastrointestinal tract too, there are certain tumors which belong to this category. In this group are the following:

1. Adenomata, single or multiple, of which fifty percent or more are potentially malignant, according to Ewing.

2. Villous tumors, branched, cauliflower-like masses growing to enormous size, of which forty percent recur on removal.

3. Papillomata; secondary changes brought about at the anal canal by chronic irritation from hemorrhoids and other lesions.

4. Condylomata and other wart like growths.

Occasionally some of the following may become subject to cancerous degeneration: Tracts of old fistulæ; chronic indolent ulcers; chronic ulcerative colitis; diverticulitis, and skin changes in chronic pruritus ani.

In view of what has been stated above, all of these call for prompt and appropriate treatment as a preventive measure, for the "optimal time to cure cancer is before it develops".

Significant Symptoms

Assuming that we are already dealing with a case of early carcinoma before the development of frank symptoms, have we any criteria by which we may judge of the possibility of a hidden focus? It is safe to say that we have objective and subjective signs that point strongly towards this, and an early lesion may be missed if these are disregarded. Then too, some cases are quite symptomless for a time and are discovered only incidental to other examinations. This makes it advisable to suggest periodic sigmoidoscopic examination, for individuals in the fourth decade of life.

A case in point is a middle-aged man, with no signs of impairment of health, who came in for examination in the course of a compensable injury. Much to the consternation of his physician, his examination disclosed a papillary carcinoma four inches from the anus, so well advanced that it must have existed several months without any warning symptoms.

Experience teaches us that there are a number of

circumstances which point to the possibility of rectal malignancy. They might be set down as follows:

1. Change of Bowel Habits

Patients who always had normal daily movements and find that they must resort to physics and are obliged to take more and more of them and get less and less satisfaction. This is especially true of those who usually had two or more daily movements and discover that their habits have become so changed that they may have only one movement in two days and that with a greater effort, more straining and additional laxatives.

2. Bleeding

Patients who have occasional and mild attacks of bleeding from the rectum, whether they have piles or not, should be carefully investigated. It must not be taken for granted that they bleed only from piles until a complete examination has been made. In fact, it is wiser to assume that the bleeding is due to carcinoma until proved otherwise. Sometimes a sudden profuse hemorrhage not accompanied by any subjective symptoms is the first sign in patients who never suspected that they had cancer. We might add that the character of the bleeding is not conclusive, as bright red blood may be found in lesions high up, provided it has been expelled before it had a chance to become altered, while clotted blood may be present in low lying carcinoma if the blood has been retained in the ampulla long enough.

3. Urgency and Pressure in the Rectum

Normal completion of any physiological function should leave a feeling of relief and satisfaction but some persons with a neoplasm are obliged to make repeated and useless efforts to empty the bowel because of beginning changes in the parts concerned. These may be due to edema, congestion or obstruction at the point of development of the lesion, stimulating a false desire to go to stool. In an early phase when these are not marked or are beyond visible range of sigmoidoscopic examination, or when they do not show up on the x ray film, we are faced with a difficult problem which requires skill, judgment and experience.

4. Radiating Pain of Lower Back

There are cases in which there are complaints of heavy, dull, dragging pain in the lower sacrum radiating to the thighs and legs and a feeling of pressure. In such cases sigmoidoscopic examination is needed to rule out growths impinging upon nerves.

5. Irregular Bowel Function

Alternating constipation and diarrhea may be present in some early cases though this is, as a rule, a later symptom, when ulceration and destruction of tissue have become prominent. These may be complicated by pain in the anal region, although it is not a common symptom in early carcinoma except when due to excoriation and tenesmus from frequent discharges.

6. Anemia, Weakness and Fatigue

A small proportion of persons who develop carcinoma have only marked anemia, pallor, weakness, fatigue and loss of weight which cannot be accounted for. Their symptoms may be caused by profound toxemia and absorption with no evident signs of a local lesion. Such patients require careful sigmoidoscopic examination to rule out carcinoma.

7. Long-Standing Gastrointestinal Symptoms

Rectal carcinoma may be suspected in the presence of chronic gastrointestinal symptoms, such as increasing distention, pyrosis, epigastric distress, flatulence which cannot be explained by x ray of the intestinal tract or functional basis.

Given any of the foregoing conditions, the problem is to attempt to rule out malignancy by all means at our disposal, including x ray and biopsy. If these are negative, such a patient must still be kept under observation until the case is cleared up.

Summary

The outlook in carcinoma of the rectum is hopeful if cases are discovered early and treated while the disease is still local.

Certain symptoms are significant of possible rectal malignancy.

As a diagnosis of carcinoma of the rectum is sometimes made as an incidental finding, a periodic sigmoidoscopic survey should be made in all persons of forty or over.

The discovery and removal of precancerous lesions is a major step in the preventive control of carcinoma of the rectum.

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THE INJECTION TREATMENT OF HEMORRHOIDS

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It is generally agreed that the injection treatment of hemorrhoids has a place in their management. It should never be offered as a universal panacea for all cases, nor should it be routinely condemned in favor of other surgical procedures. As a part of the proctologist's armamentarium it should be given consideration in the therapeutic evaluation of every hemorrhoidal problem.

Much has appeared in the literature describing the complications of injection therapy. Similarly, there are oft-repeated descriptions of surgical disasters. In both instances such complications are usually the result of either poor selection of cases or improper technique. The proper selection of cases and evaluation of indications can only result from experience and a strict adherence to rigid criteria. The proper technique is almost entirely a matter of experience. The factor of personal skill is indefinable. The factor of proper equipment is of great importance and will bear discussion.

It is my intent to here discuss indications and contraindications for injection therapy, and to describe my new needles for that purpose.

Criteria

Only patients with internal hemorrhoids are suitable candidates for injection therapy. The varicosity must be internal to (i.e., above) the pectinate line, or it should not be injected. External varicosities should never be subjected to this type of therapy. Pain and sloughing may result if the latter group is so treated.

The hemorrhoids to be treated should be of medium or small size and not on a pedicle. If a pedicled varicosity is treated by sclerotherapy it may be thus converted into a fibrous tumor.

The chief indication for therapy is rectal bleeding.

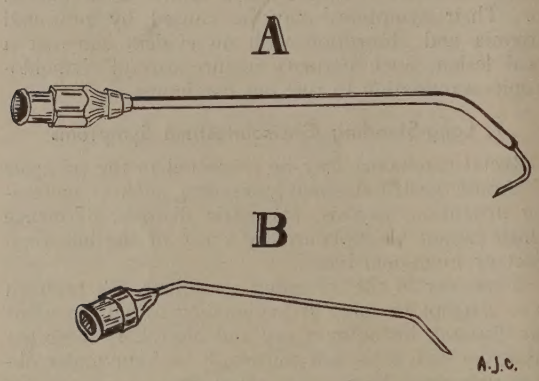

FIG. 1.—A. Retrograde injection needle for superior pole injection. B. Central point and inferior pole injection needle.

All cases of rectal bleeding must be carefully examined with the sigmoidoscope. In certain instances a barium colon enema study may also be indicated. Only when more serious causes of hemorrhage have been ruled out should therapy be instituted in the hemorrhoidal area. This is true even in the presence of obvious ulcerated internal hemorrhoids with frank bleeding. Such a patient may also harbor a malignancy higher in the rectum or in the sigmoid colon.

Whether or not prolapsing internal hemorrhoids should be treated by sclerotherapy is controversial. Certainly they should never be so treated if the patient is willing to submit to surgery. However, in the presence of general debility, old age or other surgical contraindication, and after properly informing the patient that treatment may either not succeed or be of temporary benefit only, sclerotherapy may be instituted.

Technique

It is not my intention to describe here the various techniques of hemorrhoid injection. Nor shall I discuss the relative merits of various solutions. It is my desire to outline briefly the important features of technique only insofar as they will form a basis for the discussion of my new needles and new principle of injection.

Quinine and urea hydrochloride in five percent solution has proven entirely satisfactory for routine use. It is perhaps most conveniently employed in individual two cc. ampoules.

It is most important to place the solution in the submucosa. This is most readily accomplished if the depth of injection is regulated to be one cm. or less. It must not be infiltrated into the mucosa, lest slough occur.

The next consideration of consequence is the site of injection. Some authors believe that injection should be made above the varicosity, others advocate superior pole injection, while still others recommend injection directly into the hemorrhoid or at its inferior pole. Some advise that injection be made at all these sites. There can be no general rule. The site of injection will be determined by the size of the varicosity. Whether or not more than one site is to be injected will be determined by the response to therapy. Thus, if a single superior pole injection produces sufficient venous compression to obliterate the hemorrhoid completely, certainly central or inferior pole injections would not be required for that particular varicosity. The ideal injection, in my opinion, would enter at the superior pole and extend downward to complete the venous compression.

A technique and a needle that would control both depth of injection and site of injection, and thus indirectly the extent of injection, would be ideal for hemorrhoid therapy. My own needle offers such control.

This needle is based upon a new principle of hemorrhoid sclerotherapy. It illustrates for the first time the principle of retrograde injection. Insertion of the needle point is made at the upper pole of the hemorrhoid. Penetration is produced by drawing the needle point toward the operator, i.e., in a retrograde direction. The injected solution is thus caused to infiltrate from above downward, and at an approximately ideal depth. Withdrawal of the needle is effected by pushing the shaft inward, i.e., upward. The disengaged point is then rotated centrally to bring it into view before its withdrawal.

Should further therapy be required to obliterate a particular varicosity, i.e., central or inferior pole injection, this is best performed with the needle designed for that purpose. This needle is so curved that the injection tip can penetrate only to a depth of one centimeter. Thus, danger of either too superficial or too deep an injection is obviated. The shaft curvature is so designed as to allow the needle point to remain at all times within the line of vision. These two needles simplify and render more safe the sclerotherapy of hemorrhoids. They permit complete obliteration, and supplement each other to allow for injection at all sites.

Summary

The injection treatment of hemorrhoids is of value in selected cases. Criteria for selection include varicosities above the pectinate line, hemorrhoids of small or medium size, not on a pedicle, the chief symptom to be rectal bleeding, and preferably without prolapse.

Two new hemorrhoid injection needles are described and illustrated. A new principle of retrograde injection is employed for superior pole injections, using the retrograde injection needle for that purpose. Central point and inferior pole injections, when indicated, are best performed with the needle designed for that purpose.

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SHOCK

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New York, N. Y.

Shock may be interpreted as a partial or total disruption of the vagosympathetic centers due to a neurogenic influx of nociceptive impulses, thereby causing a profound biochemicoelectrical change in the basic structure of the constituent parts of plasma and cells. In 1795, James Latta attempted to give this baffling syndrome a name which he called "shock" because, as he stated, "it resembled a condition whereby the brain could no longer control cellular vitality".

Our five senses either individually or collectively play an important rôle by reflexly preparing the terrain of this enigmatic condition. Their responses to a mass influx of afferent nociceptive influences, as we shall see, potentially contribute to the dysfunction of the vasomotor system.

Present day newer methods of warfare have enabled me to observe at first-hand diversified causes of shock among civilian and military masses in France. A large number of civilians (I mean normal individuals), living under trying conditions and the constant strain of fear and uncertainty, harbor an attenuated degree of shock. Bad news, terrifying scenes, undue exposure to heat or cold, lack of food and sleep, loud noises such as remote or nearby explosions, antiaircraft shelling, etc., can easily bring about a state of profound shock.

I recall the case of a young girl, nineteen or twenty years old, who collapsed and went into a state of shock from the odor of a putrefying horse killed by an explosive bomb some days previously. (She had not seen the horse, but the offensive odor sufficed.) Innumerable cases of shock prevailed among the people who had heard or read bad news or had seen mangled or dead bodies as the results of bombing. I cannot refrain from thinking that the "organs of sense" played an important rôle by reflexly disrupting the vasomotor system. These cases cannot be relegated to a class of preexisting nervous or mental disorders, as many of these persons were normal in every respect following recovery. Likewise, pain and exposure brought about shock through the action of the senses of touch and feeling.

People afflicted with preexisting nervous or mental disorders invariably went into shock with symptoms of muscular twitching, spasticity, muscular relaxation and collapse. Each case presented a sudden drop of blood pressure, cyanosis, air-hunger, cold clammy skin, weak rapid pulse (100-140), rapid shallow respirations (definite anoxemia). Blood pictures presented hemoconcentrations, high hemoglobin index and percentage, increase of red and white blood cells and diminished blood plasma. Blood specific gravity was likewise increased. (If accompanied by losses of large quantities of blood, the blood picture was reversed as we shall see later on.)

Shock, like infections, is governed by its degree and severity, and by a person's receptive reactions. Weakened vitality, nervous or mental derangements, etc., make individuals more receptive, and the old and very young are more susceptible.

Laboratory and experimental shock, as produced in animals, fails to explain many important factors. In man, brain centers are more highly developed and specialized, thus more vulnerable to nociceptive stimuli. Scientific data fail to explain or establish the psychic element so important in shock. The criteria offered leaves much room for discussion, especially bleeding and trauma. It is relatively impossible to estimate with any degree of accuracy the animal's nervous reaction prior to a test.

Anesthetizing animals must increase their nervous reactions, and to what extent vasomotor dysfunction or the fear factor is a factor, raises the same issue. It seems possible, therefore, that draining away the animal's life fluid, as in bleeding, is more in line with collapse than shock *per se,* and its train of profound changes in cellular organisms. Traumatizing tissues, such as crushing or tugging of organs with little or no loss of blood is more conducive of shock.

The most difficult problem in differentiating between shock and collapse is the interpretation of either syndrome or determining where each begins or ends.

Mechanism of Shock

When disruption of the vagosympathetic centers is caused by a slow or rapid bombardment of nociceptive impulses, the first reaction of cells to any stimulation is one of defense or temporary contraction. During this phase there is a momentary increase of blood pressure due to a forcible action of the heart and con-

traction of the blood vessels. Immediately, the real effects of center disruption take place because of the lack of nervous control. With control out of balance, changes take place in the cardiac, respiratory and other vital centers. The blood vessels dilate, the capillaries, because of their anatomical structures, are the weakest links connecting the arteries, and the veins tend to dilate most freely. The splanchnic capillaries, being the most numerous, dilate most freely because of thin walls and also the fragility of their external supporting structures; consequently, large collections of blood are found in these vessels.

The drop in blood pressure and the failing ability of the heart muscles to force blood through the engorged capillaries, coupled with the decrease in the blood volume of the circulating blood, soon react on all the cellular structures. Cellular starvation of oxygen causes a generalized anoxemia. The electrical ion balance is lost. Ph normalcy is broken, cellular waste products are not eliminated and an abnormal change of metabolic exchange takes place thus affecting the normal electrobiochemical ratio. This change in the basic structure heralds a further series of ominous disturbances. Increasing circulatory disruption produces a decided loss of heart muscle tone. The lack of oxygen because of poor blood supply and lung oxygenation increase the damaging vicious cycle. Transudation of fluid through the capillaries and the area of the injuries carries away not only a limited or large quantity of blood but also huge quantities of blood plasma.

Mineral salts and other blood ingredients are likewise lost. Transudation accounts for hemoconcentration, hematocrit and hemoglobin increase. Blood volume reduction may vary according to the amount of hemorrhage or injury and varies from forty to eighty percent of the total blood and plasma even higher. Blood chemistry undergoes important changes due to metabolic exchange interference. Lack of oxygen hinders fat combustion, and increases acid formation which causes acidosis when the acids pass directly into the blood stream. Carbon dioxide, nonprotein nitrogen and potassium salts increase, while sodium chloride, sulphur and blood clotting are reduced. Cellular dysfunction of liver cells account for decrease of prothrombin.

Acapnia, or carbon dioxide loss, is secondary, just as is anoxemia. Acidosis is increased by a secondary depression of the secreting organs and glands thus increasing the change of cellular pH.

Blood Picture in Shock and Collapse

TRAUMA WITH HEMORRHAGE	FEAR, PAIN, EXPOSURE, TRAUMA WITHOUT LOSS OF BLOOD
Drop in red and white cells	Hemoconcentration
blood pressure	loss of blood plasma
blood volume	increase blood specific gravity
blood specific gravity	increase blood index and hemoglobin percentage
red blood index and hemoglobin percentage	hypoproteinemia
blood pressure	increase in white cells
	less blood volume and fluid
	drop in blood pressure

Types of Shock

For nearly a century, sudden or delayed shock has been classified as "primary or secondary", the time element being considered from the incident of trauma and the onset of shock symptoms. Primary shock develops simultaneously with injury, irrespective of cause and is preceded even momentarily by an influx of nociceptive afferent stimuli. Secondary shock appears much later, perhaps hours or days, and is associated with its secondary effects of blood volume decrease and low blood pressure.

Shock may be compensated or uncompensated. In compensated shock, the condition is one in which the patients are in a state of shock and must not be neglected because of the findings. The blood volume is within seventy-five percent of normal with a plasma of about eighty or more percent. If blood pressure readings are taken they will read, systolic 100, diastolic 60, or above, while the pulse rate varies from 80 to 100. In this class of cases, while the general condition does not warrant alarm, the patients remain cold, pale, and weak. Treatment must be instituted until danger of actual shock is eliminated.

In uncompensated shock, the condition is alarming. The blood volume is low, sixty percent of normal, while plasma varies almost to the same percentage. A systolic blood pressure of 70 mm. is the lowest level at which the vasomotor mechanism can maintain peripheral circulation. If systolic pressure drops to 70 mm. or below that level, the pulse automatically increases anywhere from 130 to 150 per min., or more and becomes imperceptible. In such cases anoxemia develops damaging all cells and especially those of the fragile vital centers. If the patient does not react quickly, death will ensue within a short time despite all heroic efforts.

In shock of a neurogenic, hematogenic, toxic, or infectious origin, the main picture *per se*, may not vary much from that in which trauma or hemorrhage is the causative secondary factor, but if the blood is examined, a number of interesting pictures will be discovered.

In the former group of cases, where the blood cells have not left the blood vessels, one will find hemoconcentration despite a decline in the blood pressure. This latter is primarily due to the losses of fluid through the damaged dilated capillary walls into the surrounding tissue spaces. Extravasation of blood plasma and proteins pass out and these while in the tissue spaces draw additional fluids from the blood vessels. As the extravasated fluids concentrate, the specific gravity of the blood in the blood vessels increases together with the number of red and white cells, hemoglobin percentage and sedimentation rate.

In traumatic injuries and hemorrhage, where the blood itself has escaped, the picture is different. Blood cell reduction takes place together with lowered specific gravity and hemoglobin percentage, the degree of drop below normal depending upon the amount of blood lost. Blood pressure may vary within normal ranges if the amount of blood lost does not fall within forty or forty-five percent of the total blood volume. At this point, the heart begins to weaken, compensation fails and vasodilatation follows. With the latter condition, it is obvious that the blood pressure will drop in varying degrees.

In severe forms of shock, accompanied by very low blood pressure—despite its origin—the body cells require oxygen if they must survive; blood transfusions of pure whole blood and a supply of fresh oxygen are most urgently required.

In the first world war and in the present conflict,

many surgeons, including the author, found a great many injuries in which toxic substances either from burns, blood clots, or damaged tissues, provoked secondary symptoms of shock. (I may also include infections.) The term secondary is used because the neurogenic factors such as fear, pain, etc., entered into consideration prior to the absorption from the already infected injured areas. It is true that the syndrome often subsided following debridement.

The only valuable suggestion I can offer as to the cause is that infected toxic protein substances liberated into the circulation were transformed into toxic unknown bodies and that, in man, they act upon the already disturbed vital centers and later upon the fragile endothelial cells of the capillaries causing fluid extravasation and fall in blood pressure.

Symptoms of Shock

The symptoms of shock depend upon the degree, character, and type of shock, on the one hand, and the person's psychic and physical receptiveness, loss of blood, infection, etc., on the other. Certain types of injuries produce a greater degree of shock than do others. If one finds a dysfunction of cellular activity, with a slowing metabolic activity in all structures, a decrease in blood volume and pressure, and a condition of generalized anoxemia, a person in shock is cold, clammy, and pale, later becoming cyanotic. Temperature drops well below normal, respiration is rapid and shallow, due to lack of cellular ventilation, while the pulse increases in rate as the tension and volume decrease. Nausea, vomiting and dehydration cause profound thirst. The patient is restless, anxious, complaining; responds slowly to questions, and the reflexes respond sluggishly. The muscles are weak, flabby and toneless. Often there is a lack of sphincter control, a dysfunction of secreting organs, the kidney output being greatly reduced with scanty and concentrated urine.

The major collapse syndrome appears so that one cannot distinguish when shock ceased and collapse appeared or vice versa. Blood pressure and blood volume decrease dominate the picture. Laboratory tests demonstrate important changes in their findings. The amount of blood volume may be reduced anywhere from ninety to sixty or fifty percent of its total, and plasma likewise, according to the degree of shock or hemorrhage; the amount may suffice to draw upon the blood reservoirs such as the liver, spleen, lungs, etc. Blood pressure drops according to the diminished blood volume, whether this be through loss by hemorrhage or stasis in the capillaries and fluid transudation. The smaller the amount of blood returned to the heart, the lower the pressure.

Prognosis

The eventual outcome is governed by the degree of shock. In cases of severe shock, if the patients do not immediately respond to treatment, the rate of mortality is very high, with a low blood volume, below sixty percent of normal and plasma below fifty percent; rapid pulse rate above 130 to 140 per minute, and systolic pressure below 70 mm., the outlook is a fatal issue in all probability. Deprivation of oxygen soon destroys vital cells in the brain cortex, medulla and ganglia.

Treatment

Prophylactic.—Shock is a serious syndrome and must not be treated with complacency or wishful waiting. Every means must be instituted and necessary measures followed especially before, during and following operative procedures.

There should be careful preoperative preparation, to put the patient in the best of condition. The choice of a proper anesthetic, gentle and protective measures while the patient is undergoing the operation, and judicious postoperative care will bring about fruitful results. The surgeon can assuage both fear and pain by a few kind words or actions, important factors in diminishing shock. Patients with diseased hearts, lungs, livers, kidneys, etc., or others with chronic debilitating conditions such as toxemias, syphilis, diabetes and many other conditions are more liable to shock. Their condition should be carefully studied and treated (if possible) before being subjected to an operation.

Care should be taken against undue dehydration, exhaustion, loss of unnecessary body heat, needless exposures and drastic cathartics. Blood transfusions, plasmas and intravenous fluids should be given when indicated, as early as possible, before, during or after an operation. Oxygen should be given to forestall anoxemia of tissue.

The avoidance of a tight abdominal binder should be enforced, so that the patient can breathe freely. It is a myth that a tight binder will prevent abdominal wound disruption. The patient should be kept out of draughts and unnecessary exposures to cold. Maintenance of body heat with warm pads or hot water bottles should be enforced. Dry clothing and blankets should be exchanged for wet ones. No precautions are ever too great, when one considers the safety or well being of the patient.

A surgeon should not forget that when a patient is told he must undergo an operation the verdict is often accepted with awe and misgiving. This alone may disrupt their mental state. Fright, worry and uncertainty dominate the mind. All these nociceptive stimuli are conducive to shock. Kindly and gentle reassurances not only stimulate faith and trust, but help to bridge the gap and soften shock. Sleeplessness can be overcome with the judicious use of hypnotics. Can a surgeon visualize the unnecessary excitement and nervous strain of a patient lying awake all night fretting about the operation? Pain should and must be controlled. There are few symptoms as exhausting and nerve-racking as pain.

A patient in shock should not undergo immediate operation; wait until his condition has improved. Exceptions may be necessary in cases of profuse internal bleeding when temporizing may cause death. Waiting until the blood pressure has been improved and, if necessary, external hemorrhage controlled by pressure, clamping, ligation or a tourniquet and blood transfusions (if large amounts of blood have been lost), or plasmas given if indicated, may transform the entire prognosis. The foot of the bed should be elevated, heat and warm blankets freely made use of. Morphine should not be spared and given to keep the patient quiet. Thirst, if complained of, should be relieved with warm fluids.

In many European countries, especially Russia and the Balkan state, the blood of cadavers has been used

and is now being used daily (both in peace and in war times). This method (except for the personal mental attitude) has several advantages; in war times an abundant supply can always be had. It does not clot, can be tested for its purity, may be kept for several weeks, may be grouped into blood groups at leisure and also banked, thus providing for large quantities of plasma. The blood is gathered entirely from young men in the prime of health and in most cases free from disease. It has a definite indication and should be used if other means of obtaining blood or plasma (especially during this war) is not feasible.

Active Treatment

In treating shock, important measures must be directed toward the causative factors. Blood pressure and anoxemia must be corrected when possible without delay and kept at a maximum. Capillary permeability must be stabilized, pH equilibrium brought towards normalcy and the cardiorespiratory system stimulated. Every effort should be made to restore the fluid balances. Blood pressure and red blood counts serve as an index and guide as to the severity of shock and collapse. Blood pressure readings should be taken often so as to enable the physician to know what is taking place. When blood pressure drop has been caused by hemorrhage, whole pure blood is indicated, 500 to 750 cc. or more, and repeated if pressure is not restored. A drop of blood pressure below 85 or 90 mm. of Hg. calls for immediate transfusion of the above amounts. If shock and blood pressure remain at a low level over a long period of time, regardless of the cause, whole blood is superior to blood plasma. They are the only cells which will carry oxygen, so badly needed. Whole blood also tends to stimulate the blood forming organs and reservoirs of blood.

Administration of oxygen for air-hunger and anoxemia is indicated. The patient should be put into an oxygen tent; failing this, use a mask or an intratracheal catheter attached to an oxygen tank. Small amounts of carbon dioxide and oxygen act as a respiratory stimulant also aid the lungs in ridding themselves of accumulated secretions. If blood or plasma is not available, isotonic saline, glucose and gum acacia solutions may be substituted in an endeavor to increase the blood pressure and establish cells fluid balance. Glucose has several advantages; it does not stagnate in the tissues like saline, it stimulates kidney diuresis, increases glycogen storage and helps stabilize acidosis.

Care must be taken with diabetes by giving a small dose of insulin if necessary. Frequent blood pressure readings are indicated because most of the fluid quickly escapes into tissues, as the blood pressure drops again 20 to 25 mm. of Hg., fluids must be replenished at the rate of 100 to 150 cc. per hour until the patient has reacted satisfactorily. Care must be exercised not to force the fluids too fast, thereby eliminating all danger of dilating the right ventricle. A good plan is to add ten cc. of pure or absolute alcohol to every 1000 cc. of glucose; it not only aids lungs ventilation but stimulates the heart action.

Drug Treatment

Coramine is a satisfactory respiratory stimulant of the vasomotor center; one cc. three or four times a day may be given when the blood pressure begins to rise. Other drugs are questionable in value; sometimes adrenalin cortex extract may prove of value and may be tried; caffeine, strophanthus, quinidine or ouabaine may be administered intravenously. Their reaction is of short duration and though the blood pressure rises following their use, they do not increase the blood volume, which is of great importance; also they might produce more heart strain by driving more blood into the paralyzed and dilated capillaries.

An important factor, often overlooked, is that plasma, saline, glucose and other fluids are transfused at very cold temperatures and are injurious. I cannot condone physicians who time and again allow intravenous injections of solutions of much lower than body temperature, to enter the blood system of patients in shock. They need heat and not cold infusions. Surrounding strung-up containers with a hot water bottle is ineffectual; by the time the liquid enters a vein, it is cold.

101 EAST EIGHTIETH STREET

AXIOMS ON DIET AND A WARNING AGAINST WRONG AND HARMFUL THEORIES*

MAX EINHORN
New York, N. Y.

Every living organism represents a wonderful automatic machinery which requires nutrition as its fuel, work and relaxation for its steady upkeep. In health, all the requirements are communicated and felt as special sensations: thirst for the need of fluids; hunger for the need of food; tiredness for rest; lack of concentration on work, for sleep.

Every act of nature, when executed, is accompanied by a feeling of pleasure. Thus, taking a meal, urinating, having a bowel movement, all afford pleasure. Sexual cohabitation, if executed not too often, is likewise agreeable and also wholesome. Work, keeping the body active for a certain time, and then rest and relaxation, are both pleasant and healthful. Even in sickness our body gives us indications by means of certain sensations of what to do, and usually it is best to act accordingly.

A physician has to carry out nature's remedies and follow her principles. At times, changes in the organism occur which prevent the ordinary course of working (like intestinal obstruction). Here surgery steps in and removes the obstacle in such a way that the ordinary course of events can take place.

In case a major operation is indicated, the patient is advised of its necessity for the existence of a benign condition which can be easily corrected. The word "benign" is added in order not to worry the patient too much.

*Address delivered at the meeting of the New York Medical Union, Tuesday, April 28, 1942.

Axioms for Keeping Body and Mind Fit

1. Be considerate.
2. Never envy anybody.
3. Do not have too high ambitions.
4. Be industrious and take pleasure in the work you do.
5. Be content with your own affairs.
6. Never speak evil of anybody, nor accuse anybody in his absence.
7. Endeavor to do as much good as you can to everybody.
8. Keep your body in good shape.
9. Have some occupation.
10. Always make use of some bodily exercises: walking, horseback riding, gymnastics.
11. Avoid too much worry.
12. Eat regularly and sleep enough.

Physicians should rely greatly on their own experiences. They should never talk too much. Every word uttered to a patient must be well considered, and it should never have a depressing effect upon him. "Non nocere" is the most important axiom in medicine and surgery. When the outlook of the patient is bad, it should be reported to the nearest representative of his family, but not to the sufferer.

Axioms with Regard to Diet

1. Euphagia: eating properly.
2. In health, eat everything, as most people do.
3. In acute diseases of short duration (two to three days) rest is the best remedy. The patient should take small quantities of liquid or semisolid food, and he can be guided by his own sensations.
4. In acute diseases of longer duration liquids have to be ingested into the system, and at times can be enriched by high caloric foods in fluid form.
5. In chronic diseases, nothing should be forbidden except what is really harmful.
6. Do not act on the patient's belief in the incompatibility of certain foods.
7. Some special diseases of a chronic nature require restriction of certain food articles. These, however, should never be entirely forbidden, and their quantity gradually increased.
8. Whenever there is found an inability of the digestive tract to utilize certain food groups, it is better not to forbid them, but to give them and help their digestion by proper remedies. Later on there is usually a change accomplished in the evaluation of the same substances.
9. Never tell a patient not to take certain foods on account of the great danger to the system.
10. Sufficient nutrition must always be kept up.

Right and Wrong Ways of Eating

Euphagia: The correct way of eating is not too fast and not too slow. Everything should contribute toward the enjoyment of a meal. Pleasant company at table, nice clean dishes, some flowers, and appropriate conversation, increase the enjoyment of the meal. Avoidance of sad news and disagreeable messages have to be observed, in order not to spoil the meal. After the meal, a few minutes' rest in a reclining chair is very helpful to increase the pleasure of the repast and to help in its digestion.

"Tachyphagia", or too fast eating, may lead at times to faulty digestion, on account of the failure to break up the solid food into fine particles, causing thereby too much irritation of the gastric mucosa. "Bradyphagia", or too slow eating, is likewise bad, for it may lead to a diminution in the food intake.

Of the two incorrect ways of eating, tachyphagia and bradyphagia, the latter is by far the more dangerous condition, as it at times leads to subnutrition and chronic invalidism. As an instance of this type, the Fletcherism fad may be mentioned. As is well known, Fletcher, who had been a dyspeptic, had the idea that by eating very slowly, masticating the food so thoroughly that it would run down his throat almost by itself, he would be restored to health. He got better from his trouble. He then thought that everybody should count thirty-two before allowing the food to go down the throat, and he introduced his mode of eating as a cureall for all dyspeptic troubles. I will describe one instance of Fletcherism (of many which I have seen) with bad results.

I was called in consultation in the case of a woman, about forty years old, who had suffered from chronic dyspepsia and constipation for over a year. The physician in charge tried to cure the patient by Fletcherism. Inasmuch as the patient was required to watch the ingestion of her food minutely, he took her away from the family table and put her under the care of a nurse at a side table, where she could eat exactly as instructed. This had been going on for about three months. The patient continued to suffer and lose in weight, and this was the reason I was asked to see her.

Upon examining the patient I found that there was no obstruction at the cardia and all the symptoms appeared to be due to sitophobia. I encouraged her to eat and drink quickly without fear, and gave her a bromide preparation which helped her considerably. A little later I had her eat with her family; first, some selected foods; but very soon she ate the same foods the other members of her family did. She got entirely well. Had she persisted in Fletcherism, she would have remained an invalid all her life.

Autointoxication

Harmful theories must be criticized and always warned against. As an example, take the autointoxication theory of intestinal stasis as taught by Arbuthnot Lane, Bouchard, Combe, and others. They ascribed constipation as due to autointoxication and all the symptoms encountered (headache, dizziness, lack of sleep) dependent on it. The patient, being told that he was filled with poison, was certainly frightened and ready to do everything to get rid of his calamity. He was usually put on a very rigid, restricted diet and given cathartic remedies (liquid petrolatum; flushing of the colon with immense quantities of water and other remedies). If these remedies were not sufficient, he was advised to be operated upon (enterocolostomy or colectomy).

These patients are usually afraid to eat anything and are always worried about their carrying poisons in their system; they consider themselves "outcasts" and are never free from worry and anxiety. This is one of the wrong theories that do a great deal of harm to the human race.

In reality, constipation, as such, does not cause in-

toxication; the neurotic symptoms are usually due to other causes. As a proof of this, an artificial constipation can be produced by a concentrated, residue-free diet or by opiates or by both. A normal person can live this way for a number of days (five to six or even more) without a bowel movement and still be free from headaches or any other symptoms. H. Boldt once had to repair a rectovaginal fistula and requested me to arrange for a constipation diet and remedies to keep the patient free from bowel evacuation for five days, in order to help the healing of the fistula by a plastic operation. This patient had the above-mentioned concentrated diet with opiates. She felt perfectly well during this entire period of constipation, without headaches or anything else disturbing her.

Another instance of the bad consequences of the autointoxication theory is presented in the following case report.

A physician living in Waco, Texas, had suffered from severe dyspepsia and constipation for a number of months. He ascribed his trouble to autointoxication and put himself on a rigid diet, excluding starchy foods and living on broths and buttermilk, and used mineral oil for his bowels. He grew weaker, lost about forty pounds in weight, and was not able to carry on his medical practice. He was in a desperate condition and applied for help to one of his friends who was a well known nerve specialist in New York who resided during the summer months in Portchester. The friend of the unfortunate physician replied: "Come, stay with me and I will cure you". After spending two or three weeks with the nerve specialist, there was no improvement and the unfortunate invalid came to me at the New York Post-Graduate Hospital, for advice. After giving me a short sketch of his long ailment, he remarked: "Before undergoing your treatment I shall give you a list of all the foods against which I have an idiosyncrasy, so that you will know how to arrange my diet". My answer was: "I am willing to treat you, but before commencing the régime I must tell you that you will have to eat whatever I arrange, paying no attention to your own ideas or belief."

I then examined the patient with regard to his gastrointestinal tract, and found no organic disease present. He always complained of autointoxication, as evidenced by headache, sleeplessness, constipation and weakness. I advised him that he should not worry about his autointoxication, as there was really no poison in his system more than in other people and that his trouble was due more to a nervous state and to subnutrition. He should gradually increase his diet and eat as other people did. I gave him bromides to help him combat his fears. He quickly began to improve and in a short time regained his weight and returned home to resume his practice. A few months later he wrote to me from Texas that he had gained forty pounds in weight and that he was feeling very well, taking no medicine whatever. As a present he sent me a large bag of pecan nuts which I enjoyed very much, being conscious of the great help I had given to a worthy colleague.

Importance of Abundant Nutrition

Abundant nutrition I consider one of the most important points in the treatment of chronic ailments.

There are a great many instructions given by physicians to their patients which are defective. They often forbid bread, because it causes acid or fermentation. Bread, as is well known, is the most common food article, used at each meal. (In the Bible "bread" is mentioned as being the "staff of life".) By forbidding bread, a most important nutriment is taken away and is often the cause of subnutrition. Bread is usually eaten with butter which is another valuable asset in furnishing calories and building material for the body.

There is another common instruction given by practitioners which I consider wrong. This refers to the prohibiting of drinking water during a meal. The reason usually given is that water dilutes the digestive juices and in this way is harmful. I must say that this is a wrong theory. As is well known, our organism cannot digest solid particles of food. It must always change food into fluid before absorption can take place. Water, therefore, mixed with the food, hastens the act of digestion. Besides, water is an important constituent of the body material. Drinking water at a meal increases the appetite. Many cases of habitual constipation can be ascribed to the failure of the organism to furnish enough fluid to soften hardened fecal matter. Absence of enough fluid intake can also tend to a diminished food intake and subnutrition.

Another point of importance in having water on the table at each meal is its value as an appetizer; and also as a prophylactic measure, in case a mouthful of too hot food has been taken, to prevent injury by a burn.

In intestinal ailments, chronic diarrhea and colitis, the general opinion of physicians is to restrict the ingestion of food to minute quantities of hot bouillon, tea, cocoa and some egg dishes; but to give such foods for a long time leads to subnutrition and weakening of the body. The principle should be to lay more stress on the introduction of a large quantity of varied foods, even if some medicaments have to be applied to help their digestion, for strengthening of the body by ample foods leads to a greater potency of the organism to combat the disease.

I have had a wide experience with such cases and the patients never would have recovered on scanty diets, but got well by persistent abundant feeding.

Vitamins

A few remarks on the value of vitamins. It has always been known that besides the three essential groups of nutriments, proteins, carbohydrates, and fats (which are combined with water and many mineral ingredients), we also make use of spices in order to improve the taste of foods. The newer discoveries of vitamins show that they are found in considerable quantities also in the spices (for instance, paprika, pepper, onion, garlic, etc.).

If we take the food, more or less in its natural state, not too much refined, we usually get enough vitamins for our existence. It is only when we restrict our diet and use only very refined foods (polished rice, etc.) that a real deficiency arises. We should then live on simple foods: milk, plenty of bread (whole wheat or rye) meats, eggs, butter, cheese, fruits, vegetables, not cooked too long, some beer; using yeast in the foods: salads, carrots, spinach, celery, olives, onions, etc. As a rule we should live as our neighbors live, then we will usually get along. It is only when restricted diets or

foods (too much refined) are used, that the trouble begins.

During recent years, when physicians became better acquainted with the science of nutrition, and the amount of calories needed, an attempt was made to calculate all the heat units contained in each dish of food taken. Soon the restaurants began to print the food values in calories of each course served. At first, it looked almost like a good idea; but in reality this was not the case. It disturbs the natural way of eating and concentrates too much attention upon oneself, which has a bad influence on the body.

In order to ascertain whether enough nourishment is being taken, it is best to weigh oneself once a week, always at about the same time and under the same conditions. If there is always the same weight it shows that the nutrition is satisfactory. Should there be an increase in weight of several pounds, the diet should be changed in such a way that there will be a slight loss in weight. On the other hand, if there has been a loss, the diet must be increased. Whenever there is subnutrition, and the body is losing constantly, a richer diet must be instituted, containing plenty of bread and butter, and more numerous meals. If this point is strictly observed, there will almost always be a good result, except in chronic cases with inoperable malignant tumors or other fatal diseases.

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USE OF GASTROFARADIZATION IN TEN CASES OF STUBBORN STOMACH DISORDERS*

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In 1891 Einhorn (1) described his method of applying direct electrization to the stomach by means of the deglutible electrode. Subsequently, he reported the therapeutic results of this procedure. As a result of his experiences, Einhorn (2, 3, 10) felt that direct gastroelectrization was a potent therapeutic agent in many chronic (nonmalignant) diseases of the stomach. Other clinicians (4-9) have also employed Einhorn's method and obtained good results with it. It was, therefore, thought of interest to apply the Einhorn method of direct gastrofaradization in a series of patients who did not respond to other methods of treatment.

The procedure employed was similar to that originally described by Einhorn. The deglutible stomach electrode (Fig. 1) was used. The following cases were observed:

Case I.—Mrs. E. L., forty years old, white, had been complaining of epigastric pain for the past ten years, although she had been very nervous since she suffered from a "nervous breakdown" fifteen years ago. Ten years ago, the patient started to complain of indigestion, nausea and belching, immediately or several hours after meals. Two years ago she noted crampy pressing and epigastric distress in the morning and after meals, which was not relieved by milk or bicarbonate of soda. Nausea and acid eructations were present but no vomiting. She had been troubled with constipation since her youth. Ten years ago the patient was treated with alkalies and a diet which gave her some relief for about two years. A gastrointestinal x ray series eight years ago was reported as "negative", as was also a cholecystography five years ago. Four years ago the gastrointestinal series revealed a ptosed and dilated stomach with a nine hour gastric retention. A soft diet and medication gave her no relief. She lost fifteen pounds. A complete examination one year ago at an out of town hospital showed similar symptoms and findings.

The patient was admitted to the hospital on February 10, 1938. A physical examination was essentially negative. The string test showed, blood stain eighteen to twenty-one inches; bile twenty-one inches to the end. The gastric contents showed hydrochloric acid, 26; total acidity, 47; blood 1 plus. An x ray of the stomach and intestines revealed hyperactive peristalsis and irregularity on the upper border of the duodenal cap. No retention was present. The patient was placed on duodenal feeding. The symptoms became less frequent and less severe, and on March 10th, the duodenal tube was removed. The patient was still constipated and had to resort to enemas. Faradic treatments were started April 8, 1938. These were given every second day and were continued until April 20, 1938. The patient began to feel better and her weight increased from eighty-four and one-half pounds to eighty-nine pounds. She was discharged from the hospital on April 20, 1938, and was referred to the clinic where the faradic treatments were continued twice a week. On May 25, 1938, the patient stated that she felt better as far as her stomach was concerned. She had gained seven pounds when she left the hospital five weeks ago. Her bowels were moving regularly with only one tablespoonful of mineral oil. When last seen, on November 14, 1938, the patient stated that she felt much better although at times she was nervous.

Case II.—Mrs. M. E., forty-nine years old, was first seen in the clinic March 1, 1938. Her chief complaints were a bloated feeling in the stomach and vomiting. In 1921 her right tube, part of the right ovary and appendix were removed. In 1928 an exploratory laparotomy was performed for a suspected gastric ulcer, which was not found. A cyst of the right ovary was removed. In January 1938 the patient's present trouble started suddenly with belching and vomiting after each meal. The vomitus smelled sour, contained mucus and occasionally blood.

Physical examination revealed tenderness in the epigastric region, and over the left upper and mid portions of the abdomen. A gastrointestinal x ray series showed an oblique type of stomach but no defects in the outline of the stomach and duodenum. No gastric retention was present in six hours. Small diverticuli were found in the distal part of the colon. A test meal showed the absence of hydrochloric acid. The total acidity was 12. Lactic acid and blood were not present. The string test did not show any blood stain; bile stain

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twenty-five inches to the end of the string. Patient was put on a light diet, was given hydrochloric acid and sedatives. The patient did not feel any better on this régime. Faradic treatments were started on April 13, 1938. At first they were given every other day and then twice weekly. The patient had fewer complaints although the vomiting persisted, but less frequently. The patient was admitted to the hospital on October 3rd, for further observation. At this time the gastric contents showed hydrochloric acid, 10; total acidity, 50. The Wassermann reaction was negative. Her blood count was normal. The other findings were similar to those observed at the previous examinations. The faradic treatments were continued in the clinic. When last seen, in May 1939, the patient stated that she was much improved. The vomiting had stopped, and she had returned to her work.

CASE III.—Mrs. A. Y., forty-seven years old, came to the clinic March 15, 1937. She stated that she had been constipated for many years and had had stomach trouble for the past fifteen years, especially severe the last few weeks. Her chief complaints were pain in the epigastric region, which had no relation to meals, a bitter taste in the mouth, belching and nausea, but no vomiting; weakness, loss of weight, constipation and headaches. Physical examination was essentially negative. A test meal showed no hydrochloric acid and total acidity, 6; lactic acid and blood were negative. The blood count was normal. Faradic treatments were started in April 1937. On January 10, 1938, the gastric contents showed hydrochloric acid, 20; total acidity, 48; lactic acid and blood were negative. The faradic treatments were continued. The patient was last seen on June 20, 1938. She was feeling much better, and her bowels were moving with only one tablespoonful of mineral oil.

CASE IV.—Mrs. D. I., thirty years old, came to the clinic November 1, 1937. She had been constipated for many years. She also complained of pain in the right upper abdomen radiating to the back, since March 1937. An appendectomy was performed six years ago. Physical examination revealed tenderness in the epigastrium and right upper hypochondrium. Cholecystography revealed a large gallbladder shadow with slight delay in emptying after a fatty meal; no evidence of calculi. Test meal showed hydrochloric acid, 12; total acidity, 50; lactic acid and blood were negative. The intragastric faradic treatments were started in March 1938, and continued until May 11, 1938. The patient improved. The bowels were regular, the epigastric pain disappeared, the patient's appetite improved and she gained in weight.

CASE V.—Miss E. K., twenty-three years old, was admitted to the hospital February 27, 1939. The patient stated that she had had rectal bleeding after each bowel movement for the past five or six years. For the past two years, she complained of pains in the lower abdominal region which had no relation to meals, and belching, but no heartburn. The string showed a blood stain sixteen and one-half to nineteen and one-half inches from the lips; also twenty and one-half to twenty-two inches; bile stain twenty-four to thirty-two inches. A gastrointestinal series was reported negative for organic pathology. Intragastric faradic treatments were given to the patient during her two months stay at the hospital. The treatments were given every other day at the beginning and then twice a week. Patient was discharged on May 3, 1939. She felt much improved, her complaints were fewer and her digestion much better.

CASE VI.—Mrs. K. P., sixty-one years old, was admitted to the hospital May 9, 1939. For the past thirteen years, the patient had suffered from soreness in the epigastric region, sometimes relieved by food and bisodol; at other times it did not improve with these measures. She also complained of pain in the right upper quadrant, radiating to the back and the right shoulder blade. Fatty foods did not disturb her. The patient felt nauseated at times, but did not vomit. Lately her complaints had steadily increased. Physical examination revealed definite epigastric tenderness and slight tenderness in the right upper quadrant. The string test showed a blood stain thirteen and one-half to twenty inches from the lips; bile stain twenty-one to twenty-seven and one-half inches. A test meal revealed hydrochloric acid, 50; total acidity, 60. The blood count and urinary findings were normal. A gastrointestinal series revealed a diverticulum about one inch in diameter in the region of the cardia. At six hours some barium was retained in the gastric diverticulum. Intragastric faradic treatments were started on May 20th, and continued on and off for one year. The patient had gained in weight, her digestion had improved, and she felt generally very much better.

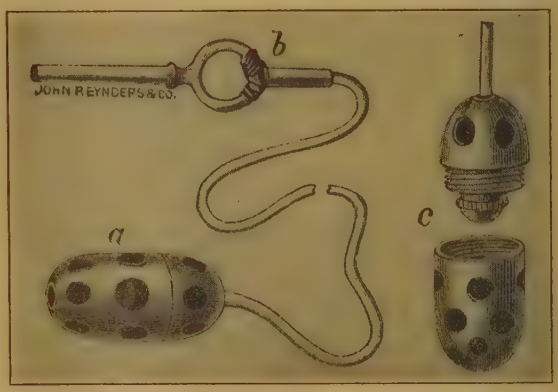

FIG. 1.—The deglutible stomach electrode (Einhorn).

CASE VII.—Mrs. S. C., seventy-two years old, was admitted to the hospital on June 6, 1941. Her chief complaints were a feeling of pressure in the lower left chest and epigastrium after meals, chronic constipation, nausea and dizziness. In 1921, the patient had a subtotal gastrectomy performed. In 1939 she was operated upon for a fissure of the anus.

Physical examination was essentially negative. The gastric contents showed hydrochloric acid, 20; total acidity, 60; lactic acid and blood negative. The blood count was normal. A gastrointestinal series showed that the stoma was functioning very well. No defects were visualized. Intragastric faradic treatments were given every second day at first, then twice a week. A marked improvement resulted in the digestion. The bowels were regular. The patient felt much better and was discharged July 7, 1941.

CASE VIII.—Mrs. N. A., fifty-four years old, was admitted to the hospital on November 20, 1939. Her chief complaints were severe pain in the epigastrium,

left shoulder, and left lower quadrant. She also complained of gas, palpitation and dyspnea. Her pain was worse on standing and was not relieved by lying down. The pain was not relieved by food. The patient was not constipated, and she had noticed that for the past few days food passed through the digestive tract unchanged.

Physical examination revealed tenderness in the left upper and lower quadrants. A left inguinal hernia was present. The string test showed a blood stain twelve to twenty-five inches from the lips. The length of the string was thirty-six inches. A gastrointestinal x ray series showed visceroptosis and multiple diverticuli in the descending colon and sigmoid. Cholecystography showed a normal functioning gallbladder shadow Faradic treatments were started on November 25, 1939. They were given every second day and were continued until December 20, 1939. The patient had gained in weight and her symptoms had disappeared.

CASE IX.—Mrs. R. L. M., forty-nine years old, came to the clinic on October 5, 1938. She complained of a sour taste in the mouth, regurgitation of food, belching, heartburn, constipation, nausea and at times vomiting. Physical examination revealed slight tenderness in the epigastrium and over the cecum. A test meal showed hydrochloric acid, 40; acidity, 42; lactic acid and blood negative. The blood count showed a hemoglobin of seventy-five percent, 4,210,000 red blood cells, and leucocytes 6000. Intragastric faradic treatments were started on June 16, 1941, and continued until August 1, 1941. Definite improvement resulted. The patient stated that her digestion was better.

CASE X.—Mrs. T. F., sixty-four years old, had been complaining of gas and belching after meals. Her tongue was coated, and there was tenderness over the abdomen but a tympanitic note was elicited over this area. The patient stated that she had been receiving various forms of medical treatment for years, but she did not feel any better. Intragastric faradic treatments were started on June 6, 1941 and were continued until August 1, 1941. When last seen, the patient stated that she was much improved.

Remarks

A series of patients with chronic diseases of the stomach were treated by means of direct faradization with the Einhorn deglutible electrode. In every one of these patients, clinical improvement was noted. Einhorn (10), who studied the physiological effects of direct faradization of the stomach, stated that this procedure increased the gastric secretion during the application of the electricity and also for a short period afterward. It also increased the absorbent faculty of the stomach. Whether faradization is a gastric stimulant or sedative, is not known. Stockton (4) thought that electricity improved the innervation of the stomach, hence, its favorable results in gastric neurosis. But, irrespective of how the electricity acts, clinical experiences have shown that it is of material benefit in many chronic diseases of the stomach which do not respond to other therapeutic measures.

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MEDICAL MANAGEMENT OF OBESITY

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For years, two prescriptions for obesity have been popular with the medical profession. One, designed for the good-pay patient, revolves smugly about diet, exercise and, by all means, "thyroid"; the other, kept on tap for relatives, dead-beats, and nuisances, reads variously but withal conveniently, "don't eat so much", "cut out those sweets", "eat less and exercise more". Both prescriptions are essentially sound, yet neither sports a very confident or scientific countenance. The obese person who really "feels" his affliction needs encouragement and after all, we doctors have learned *something* about fat metabolism and water and mineral balance.

What is the cause of obesity? Obesity always results when the energy intake exceeds the energy output.

1. EI $>$ EO equals Obesity

The immediate cause of obesity therefore, is the presence of a "positive" energy balance.

Classification customarily begins with division of the obesity into two groups, endogenous and exogenous. The former results when energy outgo is reduced without corresponding curtailment of energy intake, the latter when energy intake is increased, without corresponding increase in energy outgo.

2. EO $<$ NEI equals Endogenous Obesity
3. EI $>$ NEO equals Exogenous Obesity

N equals Normal

These definitions and formulæ graphically objectify the obesities but they are only fundamentally accurate. The factors, food *absorption* and *utilization*, involuntary exercise, nervous and mental reactions, environmental influences and the like, are imponderables that can distort beyond all recognition any equation of such sweeping compass. Interpreted strictly, many cases of exogenous obesity fit formula 2, viz., diminution in energy output due to lack of exercise may cause obesity even on a normal energy intake diet. In general, however, we like to think of exogenous obesity as being caused by eating "not wisely, but too well"; endo-

genous obesity, on the other hand, by "something inside" that slows up energy output.

Since the most common cause of overweight is simply overeating, the exogenous variety is called "simple obesity". Similarly, the customary presence of a glandular etiology in the endogenous group permits the popular label "endocrine obesity". Simple or exogenous obesity, *per se,* may be corrected by proper diet or exercise or both. Endocrine obesity, *per se,* may be corrected by the application of appropriate autacoid or combination of endocrine principles, although diet and exercise are useful adjuncts.

In practice, diet, exercise, hormone products, physiotherapy, and numerous other preparations, methods and devices may be utilized in the treatment of all cases of obesity regardless of classification.

Diet

If obesity is to be considered a disease, since it is a condition (deformity or infirmity) resulting from an abnormal process, a departure from a state of health, then I suppose the diet should be prescribed and constantly supervised by a physician. Since, however, only a small minority of fat people presenting themselves for treatment can by any stretch of the consultant's imagination be called "ill", we prefer to rely in great part on the abilities of the dietitian. To be able to translate quickly and accurately in terms of grams, calories, vitamin and mineral content, and so on, all the various foodstuffs, and possess a working knowledge of food seasons and prices, presupposes a thorough training in dietetics but more particularly (and here is where the busy physician is left at the post) necessitates constant daily study and repeated practical application.

Some dietitians are quite adept at instructing their clients in the art of estimating their energy intake. A little training of this sort is excellent for almost everyone, particularly the obese and the diabetic. I do not agree that a morbid, self-centered attitude is developed by such elementary and usable knowledge even in the neurotic. Indeed, in the latter, improvement is rather to be expected, due to the substitution for possible preoccupation with imaginary infirmity of a healthy interest in the decidedly practical antithesis—health.

The fundamental object of the obesity diet is to reduce energy intake without materially disturbing the normal processes of metabolism. On the average, this may be accomplished by limiting intake to 1100 calories, of which 225 calories are derived from fat (25 gms.) 340 calories from carbohydrates (85 gms.) and the balance of 553 calories from protein (134 gms.). Protein is favored for two reasons: it maintains the body protein level in the face of a reduced total intake of food; it further provides a natural stimulus to metabolism by means of its socalled, but poorly understood "specific dynamic" ability. In the presence of normally functioning pituitary and thyroid glands, the specific dynamic action of protein may increase the metabolic rate up to sixteen percent; twenty percent increase may be attained in hypoovarianism, thirty-five percent in secreting pituitary tumors, and as low as zero in hypopituitarism and hypothyroidism. Although the constitutionally obese do not respond so well as the thin, protein feeding is usually sufficiently effective to warrant general use. Fats and carbohydrates are undesirable both because of their low dynamic action and because with the metabolic processes retarded, they fail to oxidize and are consequently stored. In fact, fats are frequently eliminated entirely from some obesity diets. This is in great measure decided by the patient's taste in food. Approaching the problem of the patient's diet, the dietitian determines the following values:

1. *What foods "can't" you eat?*—It is well to accept unequivocally the patient's answer to this question and at once cross such foods off the list. There will always be enough dishes left from which to construct an adequate diet.

2. *Home and working conditions.*—A thesis of some length could be written on this subject. Suffice to state that the "reduction" curve of an obese woman with four fussy pampered children, a food finicky husband, no help in the house and a restricted budget will remain discouragingly elevated.

3. *When during the day are you the "most" hungry?*—Some allowance must usually be made for this time, as being "most hungry" frequently means "most weak". Bridging this period is frequently satisfactorily accomplished by prescribing two-thirds of a glass of orange, grape, or other sweetened fruit juice. A piece of stick candy is sometimes preferred.

4. *How is your appetite?*—Strangely enough, many obese patients admit to a poor appetite. Others crave food of all kinds but more particularly carbohydrates. It is usually necessary in these latter to reduce the appetite by one means or another.

Ephedrine in three-eighth grain doses may be administered before eating. Fruit juice before meals is often effective. Tincture of belladonna in ten drop doses before meals, with or without phenobarbital, also will curb the desire for food. Restriction of salt intake should be tried. A diet low in vitamin B_1, though calculated to take away the appetite, may produce untoward symptoms and is therefore not recommended.

5. *Do you ever skip a meal?*—Do so—and frequently. Further, it is advisable to limit the diet for at least one day every two weeks to fruit juice, fruits and water. Many are able to reduce rapidly by studious limitation of intake to *one-half* of each customary serving.

Exercise

"Walk at least twenty miles a day." So we are told to advise. But it would seem only reasonable to add, "you may have to get a job as a postman if you wish to pay the rent while you are reducing". Even at a brisk four mile an hour pace, five hours of each day are consumed. This will use up only about 1500 calories, or the equivalent of four pieces of pie. Rather a costly price to pay.

A far better plan is to follow a reasonable schedule of graded exercise extended gradually to an average maximum of thirty minutes morning and night. No amount of physical labor can take the place of the right kind of calisthenics. Light gymnasium work, swimming, and rowing are helpful. The last named is particularly effective in hypopituitary obesity with its usual girdle distribution of fat. The advantages of horseback riding, bicycle riding and roller skating are likewise well known.

Occasional brisk massage is advocated for its tonic effect on tissues which by other means are being re-

lieved of their supporting fatty material, thus minimizing the production of wrinkles and flabby folds. Other physiotherapeutic measures include ultraviolet radiation, electrotherapy, mechanotherapy and balneotherapy.

A final word regarding exercise. The extremely obese and those requiring rapid reduction in weight should be confined to bed during the early stages of treatment. A semistarvation regime with adequate provision for vitamins and minerals and careful check kept on body metabolism may then be enforced at greatly reduced risk.

Thyroid Therapy

This principle is given prominence along with diet and exercise because it may be used safely to treat nearly all cases not frankly hyperthyroid, and even these latter are hardly an exception, since as many cases of thyrotoxicosis respond to thyroid as to iodine therapy. Thyroid extract is used in large doses to promote the oxidation of body fat and the excretion of excess tissue fluids. Its action is directly on the sympathetic division of the autonomic chain. In small doses (1-1000 to 1-100 grain), it is a stimulant to cells of the anterior pituitary from which the resulting increased secretion of thyrotropic hormone subsequently affects metabolism by way of the thyroid gland. The latter mode of treatment is of value in hypopituitary obesity. Large doses are preferably given in courses of three weeks' duration, spaced by ten day rest periods—this to prevent thyroid "accumulation" and consequent toxic effect.

Occasional determinations of blood cholesterol and basal metabolic rate are advisable. Except in unusual instances, however, subjective signs (nervousness, tremor, diarrhea) plus pulse rate and Read's method of estimating the basal metabolism rate can be relied upon as sufficient criteria of the patient's reaction to therapy. When necessary, tolerance to thyroid may often be increased by the concomitant use of ovarian extract, estrogenic hormone or Lugol's solution. Injections of foreign protein are also helpful at times (1).

Tropic and Sex Hormones

I have never seen any benefits which could positively be credited to the use of anterior pituitary preparations by mouth. On the other hand, the obesity of hypopituitarism is definitely affected by intramuscular administration of the thyrotropic and gonadotropic fractions and the chorionic gonadotropic hormone from the urine of pregnant mares. It is also known that small, frequently repeated doses of the estrogens are stimulating to the cells of the anterior pituitary. Where these cells are capable of response, this method may be preferable to purely replacement therapy.

Hypogonadal cases without a pituitary background, such as is found in the male and female climacteric, respond best to full replacement therapy of androgenic and estrogenic hormones.

When the blood sugar content is held at an abnormally low level due to hyperinsulinism, the obesity said to result at times therefrom may be corrected by the use of appropriate adrenal extracts or ephedrine. I have had no experience with this type of case, but it would seem also logical to use pituitary extracts containing the diabetogenic hormone, since this principle both stimulates the adrenals and inhibits the islands of the pancreas.

Other Remedies

Extracts of whole pancreas contain the enzyme lipocaic which is concerned with the metabolism and mobilization of fat. Since medication of this kind is rational, harmless and possibly of very great help, we suggest that it be tried in all cases.

Diuretics and saline cathartics seem to have a place in the treatment of obesity, notably where there is actual fluid retention with or without associated elevation in blood pressure.

Therapeutic Regime for all Types of Obesity

Observe usual contraindications to exercise, etc.

1. *Diet.*—1100 calories: fat, 25 gm. (225 calories) may omit entirely; carbohydrate, 85 gm. (340 calories); protein, 134 gm. (535 calories) (2).

(a) Omit all foods that disagree or are distasteful; (b) omit all solid food for one day every two weeks; (c) as nearly as possible eat *one-half* as much of each helping as has been customarily consumed in the past; (d) a small piece of stick candy or similar sweet at the "most hungry" period of the day, *if necessary.*

2. *Fluids.*—(a) Fruit juices only for one day every two weeks (as in "b" above); (b) limit water intake to one pint daily; (c) one-half level teaspoonful magnesium sulphate dissolved in one ounce of hot water with a little lemon juice and soda added to be taken every morning on arising; (d) ammonium chloride three grams daily for two days out of each week; (e) low salt intake.

3. *To reduce appetite.*—(a) Three ounces of grapejuice before each meal; (b) tincture belladonna ten minims (with or without phenobarbital, three times a day before meals; (c) low salt intake (as in "e" above); (d) ephedrine in three-eighth grain doses before meals; (e) benzedrine sulphate, five to twenty mgm. daily before noon (3, 4); (f.) digitalis, one grain three times a day at mealtime (5).

4. *To preserve electrolytic and vitamin balance.*—(a) Pan-vitamin therapy in minimum requirement doses; (b) pan-mineral therapy in prophylactic doses.

5. *Exercise.*—(a) Thirty minutes calisthenics morning and night, followed by hot steam bath and brisk rubdown; (b) ultraviolet treatment twice a week; (c) regular indulgence in one or more of the following exercises: horseback riding, roller skating, bicycle riding, swimming, rowing, gymnasium work, and fast walking.

6. *Drugs.*—(Observe usual contraindications) (a) Thyroid: 1. Initial dose one-half grain daily for twenty-one days. After a rest period of ten days, the dose is increased, if possible to one grain for twenty-one days and followed by another ten day rest period. In this way, by *successive* steps, the dose may often be increased to as high as seven grains daily without untoward reaction. The optimum dose is the highest at which the patient just fails to show toxic effects. 2. When the above mentioned dosage is ineffective or is contraindicated, give thyroid, grain 1/100 to 1/1000 three times a day (stimulating doses).

(b) Pancreatic extract (lipocaic) at each meal.

Specific Measures for Special Types of Obesity

1. Marked obesity (seventy-five percent overweight): Bedrest and 400-600 calorie diet optional.

2. Extreme obesity (more than seventy-five percent overweight): (a) Bedrest and 400-600 calorie diet mandatory.

3. Pituitary dysfunction (functional hypopituitarism; adiposogenital dystrophy—Froelich's syndrome): (a) Intramuscular injection of the estrogens. Five hundred to one thousand international units (stimulating dose), three times weekly; or (b) oral estrogenic hormone therapy, five thousand international units daily; (c) chorionic gonadotropic hormone two hundred fifty to five hundred rat units, once to twice a week; (d) thyrotropic hormone as indicated.

4. Hypothyroid—see under *Drugs*—No. 6.

5. Hypogonadism (male): (a) Same as (3); (b) male sex hormone therapy in the form of active testicular extracts or testosterone.

6. Hypogonadism (female): (a) Estrogens, in ten thousand to twenty-five thousand international unit doses during first half of real or hypothetical cycle. (Number and size of dose governed by many factors, chief of which are character of menses, age of patient, response to therapy); (b) active ovarian extract or progesterone during last half of cycle.

7. *Cushing's disease.*—(a) Estrogens, fifty thousand international units or more daily by injection; (b) oral estrogens five thousand international units four to six times daily.

8. *Menopausal obesity.*—(a) Estrogens in sufficient amount completely to control all associated symptoms. Usual dosage: ten thousand to twenty-five thousand international units twice weekly; oral estrogens, five thousand international units once or twice daily.

9. *Prediabetic obesity.*—(a) Emphasis on a *low* carbohydrate diet (increases sugar tolerance).

10. *Idiopathic lipophilia.*—This is mentioned only for the purpose of calling attention to the fact that treatment is quite unsatisfactory.

Summary

The medical management of the obese is difficult and uninteresting unless the patient is ultracooperative. On the other hand, much can be donefor the sincere and attentive patient not too poor in circumstance. Diet, exercise (including rest) and medication must be selected carefully for each individual case. Patients who refuse to cooperate in the two first named should be firmly denied the last.

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47 Duncan Avenue

TREATMENT OF TRICHOMONAS VAGINALIS VAGINITIS WITH TRYCOGEN

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During the past several years various forms of treatment have been advocated in the medical literature for the eradication of Trichomonas vaginalis vaginitis. All have claimed some measure of popularity and success, but, as yet, no single specific course of therapy has been accepted. This is exactly what could be expected since the source of infection is unknown, the organism directly or indirectly responsible for the symptoms disputed, and the morphology of the Trichomonas vaginalis poorly understood.

We are not attempting in this short article to offer anything new with respect to the etiology of Trichomonas vaginalis vaginitis, or to present a solution of any of its many other puzzling problems. We are simply recommending another medicament which has been found successful in our hands, to the already baffling maze of treatments.

We shall not attempt to give an exhaustive review of the literature but only to refer to some of the outstanding methods of treatment of Trichomonas vaginalis vaginitis. DeLee (1) in 1920 advocated the so-called "wet" treatment, which consisted of a vigorous scrubbing of the vagina with green soap and water, followed by an application of 1:1500 bichloride of mercury. This procedure was repeated the following day and the vagina was packed with sodium bicarbonate and glycerin. Daily douches with two percent sodium bicarbonate were then given until the symptoms disappeared. This treatment had undergone many modifications, but, due largely to the pain and vigorousness of the method, it has been replaced by the "dry" treatment.

The use of powder was popularized by Gellhorn (2) who, in 1933, insufflated kaolin and sodium bicarbonate with twelve and five tenths percent acetarsone into the vagina. Since that time the trend has been toward the gentler procedures, such as insufflations of powders as an office treatment and the insertion of suppositories at night by the patient at home. The chief advantage of this treatment is its drying effect on the vaginal mucosa. Treatment has been aimed either at the alteration of the vaginal secretions so as to lower the pH or to destroy the organisms themselves by chemical means.

The arsenical compounds were first used by Bland and Rakoff (3). Silver picrate (4) crystalline phenol powder (5) and one percent picric acid suppositories (6) have given good results for their respective users. The quinolin compounds have been used extensively (7, 8, 9, 10) with successful results, while a number

of authors (11, 12) have reported excellent results with floraquin.

Adair and Hesseltine (13) used ninety-five percent lactose and five percent citric acid as vaginal inserts to supply the necessary nutrient for a normal vaginal flora and the preservation of the Dőderlein bacilli.

Kleegman's treatment (14) consisted of mercurochrome and Lassar's paste. Vaginal irrigations of various compounds have been used, including twenty-five percent salt solution, mercuric chloride, fifty percent sodium bicarbonate, acriflavin hydrochloride, and hexylresorcinol. Still others have used magnesium and copper sulphate suppositories, zinc oxide ointment, metaphen ointment and salicylic acid.

Diagnostic Method and Treatment

A series of 151 cases of Trichomonas vaginalis vaginitis which were observed in the obstetrical and gynecological service of the Wisconsin General Hospital, during the period of March 1937 to May 1940, is reported. Complete courses of treatment and follow-up examinations were obtained on 101 of the 151 cases, and only these are included in the final analysis.

The ages of the patients ranged between seventeen and fifty-four years, 31.6 percent being between seventeen and twenty-five years. Seventy of the patients were married, three divorced, five widows and twenty-three single. The duration of the symptoms suggesting Trichomonas vaginalis vaginitis varied from six days to eighteen years.

All patients admitted to the clinic complaining of the characteristic symptoms associated with Trichomonas vaginalis vaginitis, namely, vaginal discharge, itching, burning on urination, dyspareunia, inflammation of the genitalia or a punctate hyperemia of the vagina, were subjected to the following examination, in addition to the routine smears taken from the urethra, cervix and vagina:

A bivalved, fenestrated speculum was gently inserted into the vagina, without lubrication, if possible, and manipulated to give free exposure to the posterior fornices. The thin discharge of Trichomonas infection was usually found to be associated with an offensive odor, collecting in the posterior vaginal pouches, and of a green to yellow color. This green to yellow, frothy or bubbly appearance of the discharge was thought to be quite diagnostic when observed. A small wire loop of the vaginal secretion was taken from the region of the cervix, placed in a warm drop of saline on a cover slip, inverted over a concave slide, and examined immediately as a hanging drop preparation. We found this method to be the simplest and most rapid means of detecting the organism, because in fresh preparations they are in constant motion. No attempt was made to culture the trichomonad, but numerous cultures were taken for Monilia. Yeast cells, which occasionally showed budding, were seen at rare intervals in the hanging drop.

All patients harboring the motile flagellate were treated immediately with insufflations of trycogen[1] powder blown into the vagina by means of an air current, after the vagina was wiped clean and dry with cotton sponges. Trycogen powder and inserts consist of sodium thiosulphate, thymol, oil of wormwood and oxyquinolin sulphate in a bland base of boric acid, starch and magnesium carbonate. The thorough drying of the vagina is an essential step in preparing the mucosa for insufflation of powder. The vaginal walls should be widely separated in order adequately to distend all the folds and crevices. No medication or vaginal flushing was used either before or during the course of treatment so that the efficacy of trycogen alone could be ascertained. The fenestrated speculum was found to be most helpful in bringing adequate powder into contact with all the vaginal walls without undue discomfort to the patient. Its use eliminated the necessity of turning the speculum in the vagina, as is required with the solid-bladed type. After the vagina was well covered with powder, the speculum was slowly withdrawn, a small amount of the material being insufflated at the time of its removal. The labia minora were separated and both surfaces treated, following which the vestibule and entire perineum were sprayed with powder, giving special attention to the region of the anus.

It has been our policy to allay the patient's apprehension concerning her infection by explaining that Trichomonas vaginalis vaginitis is not a venereal disease, but, at the same time, may be infectious. Careful instructions as to the use of toilet facilities and bath are given; marital relations and douching were prohibited during the course of treatment. Instructions were also given as to the proper care following bowel evacuation to prevent spread of fecal matter toward the vagina. Trycogen insufflations were given on alternate days, usually three times weekly, until a series of at least three negative hanging drop examinations were obtained. Treatment was then suspended until immediately following the succeeding menstrual flow. At this time the patient was re-examined and if a recurrence was found, the same course of treatment was repeated. If the hanging drop was negative, and she had no subjective complaints, one insufflation with trycogen was given at this time and further treatment suspended until after the next menstrual period. Cures were recorded only in those patients who, following three menstrual periods without treatment, were free of all symptoms or irritation, and the hanging drop was negative.

Results

Of the 101 cases, seventy-eight, or 77.2 percent were discharged as cured, while twenty-three, or 22.8 percent, were still showing actively motile organisms on various occasions in spite of rigorous treatment. With this method of treatment the incidence of recurrence was relatively less, but the percentage of cases receiving symptomatic relief was well over ninety percent. Recurrences were found most apt to occur immediately following the menstrual period, but the possibility of reinfection could not be definitely ruled out. The increased alkalinity of the vagina following menstruation, with its elevation of the female sex hormone, are both factors which would tend to create an ideal medium for growth of trichomonads.

Effort was also made to eliminate adjacent foci of infection which have been shown to harbor trichomonads, such as cervical infections, erosions, bartholinitis, etc. These treatments, however, were usually postponed until the parasitic infection in the vagina was

[1]Trycogen powder and inserts are manufactured by The Alphaden Company, Chicago, who generously supplied the material used in this study.

cured or brought under control. In our series there was no involvement of Bartholin's glands or Skene's ducts, and the organism was never recovered from laparotomy specimens.

In thirty-three cases of Trichomonas vaginalis vaginitis included in the full series of 101, vaginal suppositories of trycogen were used in addition to insufflations. The patient was instructed to insert one tablet into the vagina nightly. This type of therapy was instituted in those cases where repeated recurrences were encountered with insufflations, or when, because of the difficulty of returning to the clinic for regular treatments, home medication was thought advisable. In this group, twenty-three cases, or seventy percent, were cured, while ten, or thirty percent, remained positive. Treatment with suppositories alone was not attempted, and it is not suggested as a substitute for insufflation therapy, but as a therapeutic adjuvant.

It has long been recognized that early and recently acquired cases are much more amenable to any type of treatment than chronic cases which have been treated through several recurrences. For this reason, the effect of any medicament in the chronic case is much more significant. Diagnosis is frequently a problem in these chronic infections, because actively motile parasites may not be found until after repeated examinations, especially when the vaginal discharge is not profuse. Two patients in our series of this type received over two hundred treatments (209 and 238, respectively), during a two-year period. Both had been treated for several years by various types of therapy prior to the adoption of trycogen, with no more than temporary relief. One patient had developed a severe vaginitis following a different powder treatment, necessitating its discontinuance. In spite of the numerous treatments in both of these cases, in one of which the patient was finally cured, there was no evidence of local irritation, toxic or cumulative effect from the prolonged usage of trycogen. Both patients stated that the insufflation kept the intense itching from Trichomonas in abeyance, which promptly returned when treatment was neglected.

In slightly less than half of our patients (forty-seven percent) medical consultation was sought by the patient because of a vaginal discharge associated with either itching, burning, chafing, or burning on urination. In seventeen percent of the cases, however, the patients had no subjective complaint that would lead one to suspect Trichomonas infection, and the infection was discovered on routine vaginal examination relative to some other pelvic complaint. The remainder may have had varying amounts of leucorrhea which they did not deem pathological, but, in our opinion, Trichomonas vaginalis vaginitis is not found in women entirely free of vaginal discharge. Not uncommonly the severity of the infection and the quantity of the discharge is in direct proportion to the number of trichomonads to be found.

Of the seventy-eight patients who were cured, thirty-seven, or forty-seven percent, showed negative vaginal secretions after the first treatment with trycogen and remained so throughout the course without recurrence. A large number of these patients volunteered that they had noted permanent relief of all their irritating symptoms following the first treatment. Nearly all the women treated complained of a mild, burning sensation in the vagina immediately following the first treatment, which promptly disappeared in several minutes without residual effect.

Trichomonas infection in pregnancy has been variously reported at from twenty to sixty-nine percent. The high incidence of these infections in pregnancy is apparently caused by the profuse alkaline secretion of the cervical glands with elevation of the vaginal pH. Only six patients in our series were treated during their prenatal course until the thirty-sixth week of gestation. All of this group stated that they were not cognizant of excessive leucorrhea or irritation prior to the onset of pregnancy, but later sought treatment for these same symptoms and trichomonads were found. Three of these patients were delivered at the Wisconsin General Hospital without complications in the puerperium, and later follow-up examinations and treatment resulted in cure. Extreme gentleness, avoiding unnecessary increase in intravaginal pressure, should be exercised in treating the gravid patient.

Gonorrhea was associated with Trichomonas infection in twelve cases in either the acute or chronic pelvic inflammatory form. Sulfanilamide was effective in curing six cases having an acute Neisserian infection, while trycogen was successful in eradicating the parasitic growth. The symbiotic association of genital gonorrhea and Trichomonas infection has been previously noted by Andrews (15), who found that in twenty-eight casese of gonorrhea Trichomonas was found concomitantly in thirteen. Two cases in our entire series were found to have positive Wassermann reactions, and two cases of Trichomonas infection were diagnosed in conjunction with carcinoma of the cervix.

Contrary to the opinion of Goodall (16), who believes that Trichomonas infections are not transmissible to the husband, cases of male urethritis and cystitis are not uncommon. Similar infections in the prostate gland have been reported. Other writers have also noted recurrences due to reinfections from the sexual partner. In only one case were we able to obtain any history of urethral discharge or irritation in the husband, and in this case an examination was never possible.

The most disturbing complications in the control of our cases was the possibility of recurrences and the arbitrary definition of a "cure". Although forty-seven percent became negative after the first treatment and remained so throughout the three months period, recurrences were seen in the remainder a varied number of times. The expense of transportation made observation impossible for longer than three months in many of the cases included in the cured group, although Angelucci (6) considers six months the proper interval of observation. The distinction between "relief" and "cure" must be closely drawn as recurrences have frequently been seen as much as a year following apparent "cure".

Summary

1. A series of 101 cases of proved Trichomonas vaginalis vaginitis were treated with trycogen and later given follow up examinations.

2. Of the 101 patients, 77.2 percent were discharged as cured (as determined by hanging drop technique): ninety percent reported complete symptomatic relief: forty-seven percent showed negative vaginal secretions

after the first treatment with trycogen, and remained so without recurrences.

3. Thirty-three cases of the series of 101 were treated with trycogen vaginal inserts in addition to the usual insufflations of trycogen powder, with seventy percent cures. This therapy was used in those cases where recurrences were encountered with insufflations or where regular treatment was impossible.

4. Prolonged treatment with trycogen did not produce any signs of toxicity of cumulative effect.

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SULFADIAZINE IN THE TREATMENT OF LOBAR PNEUMONIA*

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In previous communications we have reported our results in the treatment of pneumonia with sulfapyridine and sulfathiazole. This communication is a summary of our experience with sulfadiazine in the management of twenty-five cases of lobar pneumonia.

All patients were treated in the hospital. The diagnosis of lobar pneumonia was made clinically and corroborated by x ray. In routine practice, it is advisable that the diagnosis be based on the characteristic symptomatology of the disease rather than on the physical signs which are often indefinite. In every instance in which pneumonia is suspected, it is advantageous to obtain a sputum typing, blood count, and blood culture before the institution of therapy. However, under no circumstances should one delay therapy while awaiting the results of these tests.

We have followed our usual procedure in the routine management of this disease. The patients were isolated in a well ventilated room. The diet consisted of fluids made up principally of fruit juices and milk, not less than three thousand cc. per day. In the instance where a patient was unable to take that quantity of fluids daily by mouth, it was supplemented by parenteral fluids of normal saline or five percent glucose in saline to make up the deficient quantity.

In order to obtain absolute rest which is essential in this disease, opium or one of its derivatives was used, either codeine sulphate, one-quarter or one-half grain, or morphine sulphate, one-eighth or one-quarter grain, given hypodermically, as often as indicated in order to obtain rest. Similarly, the same drugs were used to suppress excessive cough. No other drugs were given orally.

The specific drug, sulfadiazine, was administered orally. The first dose on admission to the ward was four grams, crushed and suspended in milk. This was followed by one gram similarly administered every four hours night and day until the temperature dropped to normal, and then every six hours for the next seventy-two hours.

Care of the bowels was accomplished by the administration of a salt water enema every forty-eight hours if indicated (one teaspoonful of salt to one pint of water). Usually, if ample fruit juices were taken, the enema was not required.

*From the Medical Service of the Edward J. Meyer Memorial Hospital and the School of Medicine, University of Buffalo.

Table I: Sputum Typing

TYPE	NUMBER OF CASES	SERA	POSITIVE CULTURE	MORTALITY PERCENTAGE OF TOTAL
		Sulfathiazole		
I	5	4	1	1.8
II	1	0	0	0
III	8	4	1	1.8
VII	2	0	0	0
VIII	3	3	1	1.8
XII	1	1	1	1.8
XVIII	2	0	0	0
XIX	2	0	0	0
XXI	1	0	0	0
XXV	1	0	0	0
XXXI	2	0	0	0
Staph. and Strep.	5	4	0	1.8
Negative	22	0	3	7.27
		Sodium Sulfapyridine		
I	1	0	1	1
II	6	0	1	4
III	2	0	0	0
IV	3	0	1	0
VIII	2	0	0	0
Undetermined	2	0	0	0
Negative	9	0	0	4
		Sulfapyridine		
I	25	0	0	2
II	14	0	0	0
III	6	0	0	1
IV	3	0	0	0
V	3	3	0	0
VI	1	0	0	0
VII	7	0	0	0
XIV	1	0	0	0
		Sulfadiazine		
I	2	0	1	0
II	1	1	0	0
V	2	0	1	0
VIII	2	0	0	0
X	2	0	0	0
XVI	1	0	0	0
XX	2	0	0	4
XXII	1	0	0	0
XXV	1	0	0	0
XXVIII	1	0	0	0
Staph. aureus hemolyticus and Strep. viridans	1	0	1	4
Negative	8	0	0	4

In our series of one hundred cases of pneumonia treated with sulfapyridine the mortality rate was three percent. The sputum typing in that group is indicated in Table I. There were four patients with positive blood cultures, all of whom recovered. In the same series there were two cases of pregnancy in mid-term; these patients also recovered. The optimum blood concentration of sulfapyridine was considered to be between five and six milligrams percent, and reactions in this series were not serious.

With the use of sulfathiazole in a group of fifty-five patients, the mortality rate was 18.1 percent. This was considerably higher than in the sulfapyridine group. We believe this higher mortality rate was due to the presence of more concomitant diseases and that these patients were in the more advanced age groups. The reactions to the drug resembled those of sulfapyridine both in nature and frequency.

Table II: Reactions and Complications

	PERCENTAGE OF CASES			
Reactions	Sulfapyridine	Sulfathiazole	Sulfapyridine	Sulfadiazine
Nausea	17	30.0	84	28
Emesis	22	21.8	54	20
Cyanosis	18	54.5	52	8
Headache	0	16.3	36	0
Delirium	4	1.8	16	12
Agranulocytosis	0	1.8	0	0
Thrombocytopenic purpura	1	0	0	0
Jaundice	0	0	12	4

Sulfadiazine was used in a group of twenty-five cases with a resultant mortality rate of twelve percent. In this group four patients had a positive blood culture, and one of them expired. Reactions in general were less numerous and less marked than those observed with the use of other sulfa drugs, as indicated in Table II. The temperature in nineteen of the patients dropped by lysis and in two by crisis. In this group, however, there were five patients with unresolved pneumonia which persisted for a number of weeks but finally cleared up. The average total amount of sulfadiazine used in each case was forty-one grams; the minimum was ten grams, and the maximum was twenty grams.

Conclusions

Sulfapyridine has given us excellent results with the lowest mortality rate and few complications.

Sulfathiazole in our cases has not been as efficient as sulfapyridine. Reactions to this drug closely resembled those with sulfapyridine and the clinical response was slightly slower.

Sulfadiazine has shown reactions similar to the other sulfa drugs but these were less pronounced. There were, however, a greater number of cases with protracted resolution of the affected lung.

Early chemotherapy in pneumonia is of paramount importance, and appears to bear a direct relationship to the length of convalescence.

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Therapeutic Action of Raspberry Leaves

The old time herbalists knew something, perhaps more than a little, of the therapeutic properties of certain herbs, vegetables and fruits. Moreover, unlike many of the modern remedies, the herbal ones, as a rule, were harmless. Their action was not drastically effective, but generally slowly progressive. In the end, however, they produced beneficial results.

Raspberry leaf tea, for example, has been a herbalist remedy for many years. According to J. H. Burn and E. R. Withell, writing in the London *Lancet* (July 5, 1941), raspberry leaf tea is said to be the best known and oldest of all the herb infusions and is to be included "as a proved aid in maternity in the most ancient of herbal books". These well known pharmacologists have investigated the matter. The statement made by one firm of herb specialists is as follows: "Raspberry leaves are the dried leaves of the Rubus idæus (Rosaceæ) which grows in Europe, Canada and northern United States. The leaves impart their properties to water, giving to the infusion an odor and flavor somewhat similar to that of black tea".

Raspberry leaves have astringent properties and also act as a stimulant. It is found that if the infusion be taken freely before and during confinement, parturition is easy and speedy. The authors have tested extracts of raspberry leaves for their action on the uterus, both *in situ* and when isolated. They have found that a principle is present which causes relaxation of the muscle of the uterus when this is tonically contracted, and which diminishes the force and frequency of rhythmic contractions.

They sum up thus: "Dried raspberry leaves contain a principle readily extracted by water which relaxes the smooth muscle of the uterus and intestine when this is in tone. The action is exerted in the body of the cat and also when the muscle is suspended in a bath. The relaxation produced in the body increases with successive doses. The same principle or another causes contraction of the uterus of the rabbit *in situ*, and also of the isolated uterus of the cat, the rabbit and the guinea pig when these are not in tone. The principle causing relaxation is probably the basis of the traditional use of raspberry tea for making activity in the uterus less painful."

The authors, however, remark that it is difficult to understand how uterine relaxation should assist parturition; rather it would be thought to delay it by diminishing the force available to bring about the birth of the child. Conceivably it may assist in dilatation of the os through being exerted chiefly on the lower uterine segment. But a drug which relaxes uterine muscle should be valuable in relieving painful menstruation when this is due to spasmodic contraction of the uterus. The raspberry decoction or infusion exerts some influence on the walls of the intestine. In short, its action is deserving of closer investigation as undoubtedly there is more to be learned of its therapeutic and remedial properties.

News Items

Tulane University Medical Unit.—This unit, Army General Hospital No. 24, was organized more than a year ago under the supervision of Lieutenant Colonel Mims Gage, who will be chief of the surgical service. Lieutenant Colonel Roy Hope Turner will be chief of the medical service. At a banquet given to the members of the unit on July 9th, prior to their leaving for active service with the armed forces, Dr. Rudolph Matas, who organized Base Hospital No. 24 for service in the first world war, was the principal speaker, and Dr. John H. Musser, professor of medicine, Louisiana School of Medicine, Tulane University, was toastmaster.

New School of Humanities at Stanford University.—The establishment of this school, which began operation in September, was made possible in part by a grant of $47,000 from the Rockefeller Foundation. Mr. Lewis Mumford, of New York, is professor of humanities, with Arthur E. Bestor and Jeffery Smith of Columbia University, and Desmond E. Powell of the University of Arizona, as assistant professors. John W. Dodds, Ph.D., professor of English at Stanford, has been named dean of the new school.

Historical Medicine Section of the Academy.—The first meeting of the fall and winter season of the Section of Historical and Cultural Medicine of the New York Academy of Medicine, which will be held on Wednesday, November 4th, at 8:30 p.m., will be sponsored jointly by the Historical Section and the Committee on Public Health Relations. The program will consist of a review of Public Health in New York City: Retrospect and Prospect. The topics to be discussed include "The Story of the Public and Voluntary Health Agencies" and "Glimpses into the Future." Prominent health authorities are scheduled to speak at this meeting. Meetings of the Historical Section of the Academy are held bimonthly. On January 13, 1943, Drs. Sigerist and Castiglioni will speak on "Vesalius"; on March 10th, Dr. Edward Rosen will talk on "Copernicus"; and on May 12th, Drs. Brill and Galdston will discuss "Psychiatry." The meetings are open to members of the medical profession and all interested persons.

Public Health Association.—The annual meeting of the American Public Health Association will be held in St. Louis, Mo., October 27th to 30th, under the presidency of Dr. John L. Rice, of New York. Dr. R. M. Atwater, 730 Broadway, New York, is secretary of the association.

Grand Rounds of Bellevue Hospital Wards.—New York City physicians are invited to make grand rounds of the syphilis and dermatology wards at Bellevue Hospital to observe modes of treatment of syphilis and other venereal and skin diseases. The visits to Wards G2 and F2 are made on Wednesday mornings, starting at 9 a.m., under the direction of Dr. Frank C. Combes, professor of dermatology and syphilology at the New York University College of Medicine. Interested physicians should write or telephone the Bureau of Social Hygiene, 125 Worth Street, New York City, for cards of admission valid for four Wednesday morning rounds.

Academy of Physical Medicine.—The twentieth annual meeting of the American Academy of Physical Medicine will be held in Boston, October 14th-17th, under the presidency of Dr. William Seaman Bainbridge, of New York. The first scientific session will be held on the afternoon of October 14th. There will be a symposium on Physical Medicine in the Services, Army activities being discussed by Colonel Edgar Erskine Hume; activities of the Naval Hospital by Capt. W. E. Eaton, and in the Veterans Administration, by Dr. Charles M. Griffith. Other papers to be presented at this session are: Rôle of the physician in civilian defense, by Dr. A. William Reggio, of Boston; Care of civilian casualities in England, by Sir Robert Stanton Woods, of London; Teaching of physical medicine in relation to the war effort, by Dr. Frank H. Krusen and Dr. Earl C. Elkins, of the Mayo Clinic, Rochester, Minn. In the evening the group dinner of the New England Society of Physical Medicine will be held. The address of the evening will be delivered by Dr. Frank H. Lahey on Some problems of medicine in relation to the war. An excellent program of papers dealing with various phases of physical therapy has been arranged for Thursday, October 15th, an interesting feature being a round table luncheon discussion on Physical Measures Applicable to the War Effort, with Dr. Bainbridge as chairman. In the evening the annual Academy dinner will be held with an address by Bill Cunningham, columnist of the *Boston Herald*. On Friday there will be a symposium on the After Care of Poliomyelitis, with the following participating: Dr. William Benham Snow, of New York; Dr. Kristian G. Hansson, of New York; Dr. William Green, of Boston; Dr. Daley, of the Neurological Institute of New York; Dr. Robert L. Bennett, Jr., Warm Springs Foundation, Warm Springs, Ga., and Dr. Frank R. Ober, of Boston. In the evening the Arthur H. Ring Foundation Lecture will be delivered by Dr. Winfred Overholser, superintendent of St. Elizabeths Hospital, Washington, D. C. Saturday morning will be devoted to a clinical session at the Massachusetts General Hospital.

Medical Unit at Duke Hospital.—The officer personnel of the U. S. Army Hospital No. 65, composed of members of the staff of Duke Hospital, Durham, N. C., former staff members and alumni of Duke University School of Medicine, left for active service on July 15th. Lieut. Col. Elbert L. Persons is chief of the medical service and Lieut. Col. Clarence E. Gardner is chief of the surgical service.

Chemical Warfare and the Civilian Populations.—At a stated meeting of the New York Academy of Medicine, held on Thursday evening, October 1st, a symposium on Chemical Warfare as Affecting Civilian Populations was present. Dr. Robert A. Kehoe, research professor of physiology, College of Medicine, University of Cincinnati, read a paper on Pulmonary irritants. Dr. Leon Goldman, assistant professor of dermatology, College of Medicine, University of Cincinnati, presented a paper on Vesicants. Dr. Conrad Berens, professor of ophthalmalogy, New York University College of Medicine, and Dr. Edward Hartmann, formerly chief of the ophthalmological service, American Hospital of Paris, France, discussed the Effect of irritating and destructive gases and chemicals on the eye.

Personal.—Dr. Loyal Davis, head of the surgical department of Northwestern University Medical School, Chicago, has been commissioned a lieutenant colonel in the U. S. Army Medical Department and has been assigned to duty as consultant in neurosurgery in the Surgeon General's Office, Washington, D. C.

Dr. Charles Hendee Smith has retired as professor of pediatrics at the New York University College of Medicine. Prior to his affiliation with this college, he was a member of the staff of the Columbia University College of Physicians and Surgeons for more than twenty-five years.

Dr. Lawrence T. Royster has resigned as head of the department of pediatrics at the University of Virginia Department of Medicine, Charlottesville.

Dr. Myron E. Wegman, assistant professor of child hygiene in the School of Tropical Medicine, San Juan, Puerto Rico, has been appointed director of training and research in the Bureau of Child Hygiene of the New York City Department of Health.

Dr. M. Noble Bates, instructor in histology and embryology at Cornell University, has been appointed associate in histology and embryology at the Jefferson Medical College, Philadelphia.

Dr. John E. Anderson, director of the Institution of Child Welfare, University of Minnesota, Minneapolis, was elected president of the American Psychological Association at the recent annual meeting of the association.

Drs. Herbert Pollack, George Wheatley, and Leona Baumgartner have joined the board of directors of the China Aid Council, a participating agency of United China Relief.

Dr. Wortis Appointed Director of Bellevue Psychiatric Division.—Dr. S. Bernard Wortis has been appointed director of the psychiatric division of Bellevue Hospital, to succeed Dr. Karl M. Bowman who resigned last November. Dr. Wortis will also become Lucius N. Littauer professor of psychiatry and head of the psychiatric department of the New York University College of Medicine. Dr. Wortis assumed his new duties on October 1st.

Graduate Fortnight at the Academy.—The fifteenth annual graduate fortnight will open at the New York Academy of Medicine on October 12th and close on October 23d. The general subject chosen for discussion is Disorders of the Nervous System. The program will consist of morning panel discussions on Tuesday and Friday of each week; afternoon clinics at seventeen of New York's leading hospitals; evening lectures, and scientific exhibits and demonstrations. Among those who are scheduled to speak at the evening meeting are Drs. Timothy Leary; D. Denny-Brown; William Cone; E. Jefferson Browder; Edward A. Strecker; Harold G. Wolff; Donald Munro; Joseph E. J. King; Gilbert Horrax; Frank B. Walsh; Byron P. Stookey; Francis C. Grant; Stanley Cobb; Tracy J. Putnam; Charles D. Aring; Nolan D. C. Lewis; Walter Freeman; Lawrence S. Kubie; Henry A. Riley, and William G. Lennox. The scientific exhibit will consist of a comprehensive exhibit of research, roentgenographical and pathological material, assembled to include diagnosis and treatment, clinical and laboratory diagnostic methods, action of drugs, and fresh pathology demonstrations. The Library will exhibit books relating to the subject.

American Medical Association Cancels Meeting.—The American Medical Association has decided to cancel its ninety-fourth annual meeting which was to have been held in San Francisco next year. This is the first time since the Civil War that the association has postponed one of its annual sessions. In place of the annual meeting, the association's house of delegates, board of trustees, scientific councils and officers will meet in Chicago next June to deal with the essential business of the association, and wartime problems in the medical profession.

Annual Meeting of Military Surgeons.—The annual convention of the Association of Military Surgeons of the United States will be held in San Antonio, Tex., November 5th to 7th, under the presidency of Colonel James A. Mattison. The meeting promises to be somewhat unusual, as in addition to an interesting program of scientific papers, arrangements are being made for a visit through some of the military installations of the vicinity. A side trip to Mexico City is also being considered.

National Cancer School.—The first national training school for officers of the women's field army of the American Society for the Control of Cancer, Inc., was held in New York during the week of September 21st. The objects of this school are to provide a background for cancer control work, a full understanding of cancer control needs, a comprehensive view of cancer control organization and a knowledge of cancer control program activities. Among the speakers were Dr. Clarence Cook Little, managing director of the society; Dr. Frank Adair, chairman of the cancer committee of the American College of Surgeons; Dr. Howard C. Pitts, consultant to the department of cancer research at the Rhode Island Hospital, Providence, and Dr. Samuel Binkley, medical director of the society.

Refresher Courses in Venereal Diseases.—Dr. Louis Chargin, consulting syphilologist to the Bureau of Social Hygiene, Department of Health, is directing a weekly series of clinical refresher courses on syphilis and the venereal diseases for New York City physicians. The courses started Wednesday morning, September 23d, and will be continued each Wednesday morning through December 23d. Sessions are held in the Central Social Hygiene Center, 125 Worth Street, New York, from 9:15 a.m. to 11 a.m. Patients with venereal disease will be presented and treatment methods demonstrated and discussed. The subjects which will be discussed include the treatment of early syphilis, late syphilis, syphilis in pregnancy, congenital syphilis, chemotherapy of gonorrhea, venereal disease and the war.

Dr. Cave to Select Doctors for War Duty.—Dr. Henry Wisdom Cave, of New York, has been appointed by Paul V. McNutt, director of the War Manpower Commission, to take over the work of determining which physicians in the Second Corps Area which takes in New York, New Jersey, and Connecticut, can be spared to serve with the armed forces. Dr. Cave, who has been in charge of the work in New York State, succeeds, in the three-state post, Dr. Arthur W. Booth, who has resigned. Dr. Joe R. Clemmons, director of the Roosevelt Hospital, New York City, will succeed Dr. Cave as New York State Chairman for Physicians for the Procurement and Assignment Service.

Book Reviews

Surgery of the Ear

Surgery of the Ear. By SAMUEL J. KOPETZKY, M.D., F.A.C.S., editor, professor of otology, New York Polyclinic Medical School and Hospital; attending otolaryngologist, Beth Israel Hospital, New York. New York and Edinburgh: Thomas Nelson and Sons, 1938. Pp. 468. Price $15.00.

The Loose Leaf System of Medicine is as perennial as the pines. Therefore, it can never become old in the narrow sense, since it is constantly being reinvigorated. Quite recently, the Nelson Company has published *Medicine of the Ear,* edited by E. P. Fowler, Jr., M.D. The volume under review is a sort of companion volume to the previously written "Surgery" which it supplements and supports.

Dr. Kopetzky has been ably aided by his associate editors, all of whom being special investigators in the fields wherein they write. Naturally enough, he has first place in the book and describes for us the basic factors underlying otitic suppuration. Ersner, of Philadelphia, sets forth the diagnosis of otitic surgical lesions, and is followed by Batson, of the University of Pennsylvania, who has studied intimately the surgical anatomy of the temporal bone. Lillie, of the Mayo Clinic, writes the chapter on surgery of otitic sepsis, and Ralph Almour, who has long worked with Kopetzky, sets forth the surgery of suppurative petrositis, a subject which has been widely discussed for the past decade. Davidoff, of the Jewish Hospital of Brooklyn, describes the surgery of brain abscess, clearly, concisely and quite practically in some twelve pages with illustrations in line drawings. Tickle, of the Manhattan Eye, Ear and Throat Hospital, is the natural heir of the work on nerve transplants and grafts so well begun by Duel and Ballance in their few last years of life. Most of this preliminary work was done conjointly during the years 1929 to 1931, and was published in the *Archives of Otolaryngology,* in 1932. All of the known operations were repeated upon monkeys and cats before being tried upon patients. The published portraits of patients who were "cured" of facial paralysis are very convincing. Of great interest, too, is the chapter by the Swedish Professor Gunnar Holmgren, of Stockholm, who elaborates and discusses the surgical therapy of otosclerosis.

Otologists will find in this "Surgery" from Nelson the last word yet uttered in these highly specialized subjects.

Internal Medicine

The Fundamentals of Internal Medicine. By WALLACE MASON YATER, A.B., M.D., M.S. (in Med.), F.A.C.P., professor of medicine and director of the department of medicine, Georgetown University School of Medicine; physician-in-chief, Georgetown University Hospital; formerly Fellow in Medicine, The Mayo Foundation. First edition—revised. New York and London: D. Appleton-Century Company, Inc., 1942. Pp. 1021. Price $9.00.

This book on medical practice presents essentials indispensable in the diagnosis and principles of non-surgical treatment for everyday practice. The minimum amount of knowledge of clinical medicine is given as the foundation for what the student or practitioner should have at his fingertips. Upon this basis is built the superstructure for more detailed knowledge. It enables the student to obtain the kernels of a field as a guide for individual embellishments in considering the diseases of each system. The symptomatology is given in panorama for evaluating the disorders of each part of that system. At the end of each chapter some recommended texts are presented to familiarize the student with special sources of information in particular fields. In some chapters the methods of examination are given to aid in obtaining the facts pertinent to diagnosis. The book closes with a chapter on dietetics applicable to most branches of internal medicine. The presentation is terse, the diagrams clear and the summations authentic.

The Kenny Method

The Kenny Method of Treatment for Infantile Paralysis. By WALLACE H. COLE, M.D., professor of surgery and director of division of orthopedic surgery, University of Minnesota; JOHN F. POHL, M.D., clinical instructor of orthopedic surgery, University of Minnesota; director of Infantile Paralysis Clinic, Minneapolis General Hospital; and MILAND E. KNAPP, M.D., clinical assistant professor of radiology and physical therapy, and director of training courses in Kenny technique, University of Minnesota. Prepared under the auspices of its Committee on Education and distributed by The National Foundation for Infantile Paralysis, Inc., 120 Broadway, New York City, 1942. Publication No. 40.

One of the most useful therapeutic manuals for the practitioner is now available through the National Foundation for Paralysis. It is a complementary source of information to physicians. The study initiated by Miss Elizabeth Kenny in Australia and continued in this country is of such tremendous importance in the conservation of this dreaded scourge that familiarity with the simple procedures should be the duty and privilege of every physician. By means of this technique, patients with acute infantile paralysis are more comfortable and cheerful during the acute stage than those immobilized. Despite the simplicity of the procedures, there are no contractures. Even the most severely paralyzed patients have full range in all their joints. The abandonment of immobilization is now universal, hence familiarity with the Kenny method of treatment in the acute stage is indispensable. This booklet presents the details with great clarity in the hope that they will be used accurately to great advantage by practitioners and specialists.

Conquest of Bacteria

The Conquest of Bacteria. From Salvarsan to Sulphapyridine. By F. SHERWOOD TAYLOR. Foreword by HENRY E. SIGERIST. New York: Philosophical Library and Alliance Book Corporation, 1942. Pp. 175. Price $2.00.

The subtitle, "From Salvarsan to Sulphapyridine", dates this book. We have advanced from sulfapyridine to sulfathiazole. The course of events has proceeded with rapidity. By the time this review reaches the reader, the most recent of these miracle drugs may be something not yet known to the writer. It is good to have an appraisal. Dr. Henry E. Sigerist says this in his foreword:

I like Mr. Taylor's book very much because it presents the story of chemotherapy in terms which are the more impressive because they are simple and sober. This is the best type of popular book on a scientific subject, and it should be welcome to the thousands of people who have read accounts of the new miracle drugs in the newspapers and would like to know what it is all about.

Critique

The Man of Science

Edward M. East had an interesting article of this title in good old *Scribner's* magazine for December 1928. Some observations made therein are still of interest. Thus: "Science does not even try to experience what lies back of phenomena and admits its limitations. Those who defend mysticism avoid cruel conflicts with reality and compensate with daydreams; he cannot believe he is so unimportant as science has made him. . . .If science diminishes our ancient confidence in supernatural things, it is diminishing the fear with which they were formerly regarded. . .Deal only with the facts—all the facts; approach them without prejudice; draw justifiable conclusions from them; face these conclusions boldly"—that is scientific method, said East. "The sole objective of science," he went on, "is to teach the relation of things to each other. It certainly does not teach the true nature of things. . . Science is the description of the unknown in terms of the known. . .Certain indescribable antecedents will always remain unknowable." Finally: "Does science teach us the true relation of things? In a pragmatic sense, yes. . .True, our socalled laws are periodically replaced, and to the ignorant this process is building the new upon the ruins of the old. But such is not the case. Of the old something ever remains to serve as a foundation of the new. We approach exactitude and call it truth. . .In our experience it serves as truth. . . Is it real, or is it a mirage? I do not see how we shall ever know, or why we should ever care. It fits in with the pattern of existence. It works. If our science is the shifting illusion of a silvered screen, so are we."

Chronic Appendicitis

Chronic appendicitis was well polished off by John Burton Carnett and Russell S. Boles in the *J.A.M.A.* of December 1, 1928 (p.1679), in an article entitled "Fallacies Concerning Chronic Appendicitis". It appeared that patients who underwent operations for this malady fell strictly into the asthenic, visceroptotic group characterized by nervous instability and persistent functional digestive disorders. "We are unable to find any symptom complex which justifies a clinical diagnosis of chronic appendicitis which would be cured by appendectomy." A history of recurrent acute attacks antedated by good health justifies no such diagnosis. Laboratory evidence of chronic changes in the appendix does not mean that appendectomy would turn the trick. Microscopic and gross chronic changes in the appendix naturally occur with age; they are normal. A study of the evidence one year after operation would convince many surgeons of the futility of such procedure in this condition. Bettman was quoted as saying: "It is bad enough that nearly two percent die from the operation; that countless errors in diagnosis are made; that forty percent of operated patients remain unrelieved. In addition, a fairly large proportion of all patients are made worse by operations and some are invalided for life." The real trouble in half the cases was found to be toxic parietal neuralgia, which is also a common cause of symptoms related to the gallbladder or regarded as pointing to ulcers of the duodenum. The surgeon, finding all organs normal on operation, usually blamed the appendix anyway, though it merely showed the changes usually encountered in this organ in advanced adults. The doctors advised abandonment of the operation for chronic appendicitis. They said: "We believe the treatment of cases heretofore regarded as chronic appendicitis should be nonoperative and should consist of orthopedic supervision of strains and lesions of the spinal column, elimination of toxic foci, and medical correction of digestive disturbance." Other physicians discussing this paper when it was delivered declared that from twenty-two to twenty-five percent of their patients had already had appendectomies, and that the operation had rarely removed the complaints it was instituted to remedy.

Vitamins in Gastric Ulcer

Searle Harris, *J.A.M.A.*, November 10, 1928 (p. 1452) mentioned the McCollum and McCarrison work on vitamin lack as a cause of easy infection. He asked whether vitamins B and C protected the gastrointestinal tract. Then how about sugar-saturated, vitamin-starved Americans on white bread, potatoes, rice, lean meat, sugar-saturated coffee, sugar-laden desserts, candy, and soft drinks for a diet? About a quarter of the patients admitted to hospitals had appendicitis, gallbladder trouble, ulcers, colitis, or gastrointestinal trouble of some other kind. The ulcer diets then used were said to be deficient in vitamins A, B, and C. We eat about a teacupful of sugar per capita per day; whereas we consumed twenty-three pounds of sugar annually in 1870, we consumed 106 pounds each in 1926. This excessive use of vitamin-free carbohydrates in our diet was said to be dangerous. If the coming war sugar ration cuts our consumption in half we shall be far healthier. This is one more bit of evidence showing that only a murderous war can make us use scientific knowledge in a scientific manner.

Proteins in Food

The *American Journal of Public Health* for November 1925 (15, p. 11) carried an informative article by D. Breese Jones on the "Chemistry of Proteins and Its Relation to Nutrition". The significance of proteins in nutrition was realized in the main after the amino acids became known. Protein composes about eighteen percent of the body of man and the amino acids, lysine, tryptophan, cystine, and histidine appear to be indispensable for the normal nutrition of animals. If a protein lacks lysine, growth is deterred. Gliadin, one of the two chief proteins of wheat endosperm, lacks lysine, but the addition of only two percent of this amino acid renders it adequate. Zein, the alcohol-soluble protein of corn, will not support life unless supplemented with tryptophan which it lacks. The protein of the common white navy bean will not promote the growth of young animals; if fed its isolated proteins or the ground raw bean the animals die, unless 0.2 or 0.3 percent of cystine is added which prevents decline and promotes growth. Heating bean proteins for a short time improves their nutritive properties and enables animals to maintain weight but not to grow; when heated and supplemented with cystine the bean proteins are adequate. Phaseolin, the chief protein of the navy bean, is more digestible after it has been cooked than when raw, and the proteins of the lima bean, adsuki bean, mug bean, cow

pea, and lentil, all have defective nutritive properties. The biological value of all proteins is limited by their amino acid content. Why the digestibility of proteins is improved by heating was unknown. Moreover, bean proteins contain 0.6-0.7 percent of cystine, which is twice as much as casein contains, and a casein diet at a fifteen to eighteen percent level will supply sufficient cystine to produce normal growth in rats. Yet the same amount of phaseolin or lentil proteins will inhibit growth, though they do not lack cystine which in this case must somehow be unavailable.

Jones thought proteins too much neglected since vitamins assumed importance. He remarked that patent wheat flour contained no bran, which itself contains valuable proteins high in cystine, arginine, histidine, lysine, tyrosine, and tryptophan. Lysine is far higher in bran than is gliadin of the wheat endosperm where it is deficient. Tryptophan and cystine also occur richly in bran proteins which as a whole contain from two to two and one-half times the amount of the necessary amino acids as wheat endosperm or wheat flour. Only histidine is present in bran in no larger amounts than in the endosperm. Feeding experiments had proved bran to be a complete source of protein and at the same nitrogen level rats grew twice as fast on bran as on white flour. Bran is usually regarded as contributing bulk but no food value to the diet. Don't believe it. Rats use it efficiently and at minimum it adequately supports them. It is wrong to think that ruminants only can derive food value from bran.

Types of People Writing on "Up From Barbarism" in the *New Republic* for December 5, 1928, Katherine Cook Briggs divided people generally into four types, i.e., those guided by sensation, intuition, feeling, and thinking. She said no single educational system could possibly work well for all these types any more than it could for a canary and a gold fish.

THE CRITIC

Medicoliterary Notes

Again those doughty pioneers in medical science, the Mayo brothers and their father, appear in print, this time for younger readers. Adolph Hegli has prepared the text of an interesting volume published by Julian Messner, with illustrations by Rafaelli Busoni. *The Mayos: Pioneers in Medicine* should appeal particularly to young people with medical ambitions. Also, it will interest adults who have not time to read the hefty volume by Miss Clapesattle, which will probably always stand as the classic biography of the famous brothers and their father, as well as the most complete history of the Mayo Clinic.

* * *

It is not often that an eighty year old writer produces his one hundred and twenty-first book. But it is still more unusual when that one hundred and twenty-first book proves not only a best seller but the author's best of its kind. But this is just the case with Eden Phillpotts' *Deed without a Name,* which has been pronounced an A number one thriller by all the mystery fans who have read it. The story has a fascinating background of British and exotic West Indian life, which enhances the interest of the plot and of the cleverly drawn characters.

* * *

Dr. Chevalier Jackson, inventor of the bronchoscope, is again in the headlines as a surgical miracle worker. His most recent miraculous achievement was the removal of a key from the throat of a four year old child. In his autobiography, *The Life of Chevalier Jackson,* a publication of the Macmillan Company, the story is told of how Dr. Jackson's socalled surgical miracles came about.

* * *

Once a mystery story writer, always a mystery story writer, is the prevailing opinion among litterateurs. However, Margery Allingham, whose detective tales have enthralled a generation of "fans," has broken the tradition, and most successfully. *The Oaken Heart* is not fiction, but an interesting almost day-by-day account of life in a small English village during war time. It is a moving narrative, with spots of humor and others of pathos, recounted with simplicity, courage and a lack of sensationalism which does not deprive it of sympathetic understanding and wholesome feeling. In short, *The Oaken Heart* is just the sort of book every one of us in these United States would do well to read in order to understand how the other half of the world lives.

* * *

Fading Trails is a study of American wildlife prepared by a committee of the Fish and Wildlife Service of the National Park Service of the U. S. Department of the Interior. It lays special emphasis upon those species of American wildlife that are near extinction and urges every American to do all he possibly can to preserve them from complete destruction. The book is a recent publication of the Macmillan Company.

* * *

An entertaining tale comes from the publishers of Margaret Mitchell's *Gone With the Wind.* That lady has announced that she will greatly appreciate anyone's taking a Japanese doll off her hands. The doll, which she has named Madame O So Solly, represents all the royalties that Miss Mitchell has ever received on more than 200,000 copies of *Gone With the Wind* in Japanese editions. The doll was sent to her in 1937 by one of the Japanese publishers who brought out the book without the author's consent, with the request that she be photographed with the doll for his advertising purposes. Needless to say, this wasn't done, and Miss Mitchell filed Madame O So Solly away in the back of a closet. "Long before Pearl Harbor I was ready to fight," she says, "for every time I went to that closet, there she was simpering at me. After Pearl Harbor I wanted to get rid of the doll and thought of presenting it to a shooting gallery. Then I decided to give it to the American Red Cross to be sold for the benefit of the Atlanta Chapter. If anyone wishes to buy it as a curiosity, I hope the money will eventually help some soldier who is fighting in Japan. Royalties of that kind are the finest I could ask." Miss Mitchell has already been offered $100 for the doll, but hopes for higher bids. The money will probably be turned over to the local blood donor center, she says.

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OCTOBER 1942

Medicolegal Notes

Vitamins A, B, D and G Not Drugs under Indiana Pharmacy Law

The basic law of Indiana regulating the sale of drugs is the law of 1899 and subsequent acts supplemental and amendatory therof. The Indiana Appellate Court believes that full force and effect can be given to each of these acts and that they should be construed together as a part of a uniform system for the control of the matters constituting the field covered by this legislation. In this general scheme and plan the Act of 1927 relating to the licensing of drug stores is recognized by the court as being in large measure a licensing act.

A grocery and baking company obtained in an Indiana court a declaratory judgment to the effect that its vitamin capsules A, B, D and G constituted a food or food constituent or extract and not a poisonous chemical, drug, or medicine, and is not compounded by physician's prescription; that the sale of these capsules was not required to be made in accordance with the terms and provisions of the Basic Pharmacy Law of the state as embodied in these statutes, including the act of 1927; and declaring invalid insofar as purporting to apply to the sale of the plaintiff's vitamin capsules a rule and regulation adopted by the Indiana Board of Pharmacy which provided that "all vitamin preparations may be sold in no stores other than drug stores operating under a drug store permit issued by the Indiana Board of Pharmacy."

This judgment was affirmed by the Indiana Appellate Court, Department of State vs. Kroger Grocery and Baking Company, 40 N. E. 2d 375.

The plaintiff's expert witnesses all testified that the vitamin capsules in question were not drugs but were either food or accessory food factors, and there was further expert testimony that the capsules did not fall within the meaning of the word "drug", as defined in the Federal Food, Drug and Cosmetic Act and the Indiana Act of 1939 on the same subject. While this expert testimony was not conclusive of the matter, the trial court was held bound to give it due consideration. The appellate court found no evidence that would support a finding that the vitamin capsules in question are a prescription or pharmaceutical specialties.

X Ray Photographs as Evidence of Malpractice

Expert evidence is not always essential in malpractice cases to make an issue for the jury. In an action for alleged negligence in treating plaintiff's broken leg, an x ray photograph of plaintiff's leg, taken before an operation performed by another surgeon, which disclosed a very unsatisfactory result of the prior treatment of the leg by the defendant, coupled with his admissions that he had advised the patient that this treatment would not achieve a satisfactory result, and that an operation would be necessary, was held to make a case for the jury. The question of whether plaintiff refused to permit the defendant to perform an operation was also a jury question, necessitating reversal of judgment for the defendant on a directed verdict and remand of the case for trial. Richardson vs. Roebber, Missouri Supreme Court, 159 S. W. 2d 658.

Hypothetical Question Must Follow the Evidence

Hypothetical questions must reflect the true state of facts in evidence. The opinion of a medical expert that a blow on the chest received by an insured when he struck the steering wheel of his automobile in a collision was sufficient to cause insured's death was held to be valueless, when based on the erroneous assumption that insured was confined to his bed for forty-five days preceding his death, instead of only one day before his death.

Kentucky law requires that a certified copy of the death certificate "shall be prima facie evidence in all courts and places of the facts therein stated." Troutman vs. Mutual Life Ins. Co., Sixth Circuit Court of Appeals, 125 F. 2d 769.

Estimation of Damages for Injuries

Allowance by a jury in a personal injury case of $5,680 to a woman of fifty-six, who earned about $17 a week, for bruised ear, side, leg, knee and ankle, broken ribs, and injuries to back, chest, fingers and elbow, causing a loss of $799 in wages, and necessitating hospital services and medicine costing over $1,000, was not excessive. Shatz vs. Raiser, 289 Ky. 297, 158 S. W. 2d 627.